BURMA GAZETTEER

AMHERST DISTRICT

VOLUME A

BURMA GAZETTEER

AMHERST DISTRICT

VOLUME A

COMPILED BY

MR. B. O. BINNS, I.C.S.
Settlement Officer

RANGOON
SUPDT., GOVT. PRINTING AND STATIONERY, BURMA
1935

Price,—Rs. 3-8=5s. 3d.]

LIST OF AGENTS FOR THE SALE OF GOVERNMENT PUBLICATIONS.

IN BURMA.

AMERICAN BAPTIST MISSION PRESS, Rangoon.
BISWAS & CO., 226, Lewis Street, Rangoon.
BRITISH BURMA PRESS BRANCH, Rangoon.
BURMA BOOK CLUB, LTD., Post Box No. 1068, Rangoon.
INTERNATIONAL BUDDHIST BOOK DEPÔT, Post Box No. 971, angoon.
NEW LIGHT OF BURMA PRESS, 26 and 26A, Phayre Street, Rangoon.
PROPRIETOR, THU DHAMA WADI PRESS 16—80, Maung Khine Street Rangoon.
RANGOON TIMES PRESS, Rangoon.
THE CITY BOOK CLUB, 280, Phayre Street, Rangoon.
MESSRS. K. BIN HOON & SONS, Nyaunglebin.
MAUNG LU GALE, Law Book Depôt, 42, Ayo-o-gale, Mandalay.
CONTINENTAL TRADING CO., 363, Lower Main Road, Moulmein.

IN INDIA.

BOOK CO., LTD., 4/4A, College Square, Calcutta.
BUTTERWORTH & CO., (INDIA), LTD., Calcutta.
S. K. LAHIRI & CO., 56, College Street, Calcutta.
W. NEWMAN & CO., Calcutta.
THACKER, SPINK & CO., Calcutta and Simla.
D. B. TARAPOREVALA, SONS & CO., Bombay.
THACKER & CO., LTD., Bombay.
CITY BOOK CO., Post Box No. 283, Madras.
HIGGINBOTHAM & CO., Madras.
MR. RAM NARAIN, Proprietor, National Press, Katra, Allahabad.

IN EUROPE AND AMERICA.

The publications are obtainable either direct from THE HIGH COMMISSIONER FOR INDIA, Public Department, India House Aldwych, London, W.C. 2, or through any bookseller.

PREFACE.

The present edition of the Amherst District Gazetteer, Volume A, is based on the edition compiled by the late Mr. P. E. Jamieson, I.C.S., which was published in 1913. Chapter I has been largely rewritten and considerably expanded by the insertion of full notes on what is known of the geology of the district. The historical notes in Chapter II have been changed but little. Some additions have been made to the archæological section. Knowledge of the archæology of the district is still very imperfect and a systematic archæological survey is very desirable. Chapter III has been largely rewritten and the figures for population, etc., brought up to date. Chapter IV has been almost entirely rewritten, a good deal of new material has been introduced and the statistics brought up to date. The historical part of Chapter V remains much as before. The remainder of the Chapter has been entirely rewritten in the light of the latest information received from the Forest Officers. Chapters VI and VII have been largely rewritten and the information contained therein brought up to date. Chapter VIII has been entirely rewritten. The information and statistics in Chapters IX—XIV have been brought up to and considerable portions rewritten, notably the paragraphs on Moulmein Town.

Much of the material for the present edition was collected by Mr. H. C. Baker, I.C.S., during my absence on leave in 1932. My thanks are due to him for his assistance in this matter. I also desire to acknowledge my indebtedness to all the gentlemen who have collected materials and provided notes on various subjects and especially to the late U Ba Htin,

K.S.M., A.T.M., Deputy Commissioner, Amherst District and all the officers under his control, Mr. R. K. Harper, I.C.S. (Co-operative Societies), Mr. J. J. Bennison, I.C.S. (advance census figures), Mr. H. B. Barret, Mr. J. F. D. La Touche and Mr. H. H. MacColl (Forests), Mr. E. L. G. Clegg (Geology and Minerals), Mr. R. F. Craen, U Kyaw U (Administration of Justice), Mr. W. Gregson (Agriculture), the officers of the Burma Railways, and the Irrawaddy Flotilla Company, Ltd. In particular I wish to thank Mr. Clegg for his comprehensive note on the geology of the district and Mr. Barrett for his most interesting and informative note on the Thaungyin Forest Division and the *fauna* and *flora* of the district, which enabled me to correct several errors in the previous edition of the gazetteer. *I am also indebted to* Mr. F. George, *I.C.S., for reading and correcting the proofs of the* Gazetteer.

B. O. BINNS,
Settlement Officer, No. 3 Party.

MONYWA, *the 14th November 1934.*

TABLE OF CONTENTS.

CHAPTER I.

PHYSICAL DESCRIPTION.

PAGE

Boundaries; General Description; Mountains—Dawnas; Taungbon Hills; Taungnyo Hills; Other Hills; Rivers —Salween; Gyaing; Ataran; Thaungyin; Other Rivers Geology—The Coastal Area; Mergui Series; Sandstone Quartzite and Shale Series; Taungnyo Range; Moulmein Limestone; Amherst Hills; Bilugyun and Green Islands; Granite; The Eastern Area; Dawna Gneisses; Mergui Series; Conglomerates of limestone and red sandstone pebbles; Tertiary Beds; Stratigraphical questions which remain to be solved; Hot Springs; Botany; Fauna; Climate and Rainfall; Temperature 1

CHAPTER II.

HISTORY AND ARCHÆOLOGY.

HISTORY—Môn Period; Burmese Period; First Burmese War Annexation; The Second Burmese War; Subsequent History; Archæology—Ancient Towns; Pagodas. 15

CHAPTER III.

THE PEOPLE.

Population—Density; Growth; Distribution; Races; Môns; General Character; Villages; Houses; Clothing; Food; Religion; Karens; Burmans; Shans; Taungthus; Tavoyans; Natives of India; Chinese; Other Races. 21

CHAPTER IV.

AGRICULTURE AND IRRIGATION.

Agriculture—General Features; Crops—Rice; *Lè;* Mode Cultivation; Varieties of Paddy; Marketing of Crops; Irrigated Paddy—*Pata, Patè* and *Mayin; Taungya;* Gardens; Durians; Oranges; Mangosteen; Betel-nut; *Dhani;* Vegetables; Sugarcane; Cotton; Rubber; Pests; Extension of Cultivation; Land Tenures; Tenants; Indebtedness; Co-operative Societies; Agricultural Stock; Cattle Disease; Irrigation; Protection and Drainage Works. 30

CHAPTER V.

Forests and Minerals.

PAGE

Forests—History; 1827-1828; 1829; 1840; 1841; 1841-63; Timber Trade; Modern Forest Administration; Thaungyin Division—Nature of Forest Growth; Principal Timber Species; Reserves; Working Plans; Plantations; History of the Division under the Forest Department; Teak; Hardwoods; Other Forest Produce; Ataran Division—Nature of Forest Growth, Plantations; Extraction Routes; Reserves; Working Plans; Kado and Agency Division; Exploitation; Forest Revenue; Minerals; Occurrences; Exploitation; Salt. 48

CHAPTER VI.

Occupations and Trade.

Occupations—Agriculture; Arts and Industries; Ceramics; Silver Work; Ivory Carving; Fishing; Boat Building; Other Industries; Factory Industries; Trade Sea-Borne; Foreign; Coasting Trade; Overland Trade; Local Trade. 59

CHAPTER VII.

Means of Communication.

Waterways; Railways; Ferries; Means of Transport; Rest Houses; Posts and Telegraphs. 65

CHAPTER VIII.

Famine and Scarcity. 70

CHAPTER IX.

General Administration.

General Administration—Subdivisions; Townships; Judicial Administration—Civil; Registration; Criminal Justice; Crime; Police; Jails; Public Works—Public Works Department; The District Cess Fund; Lighthouses. 72

CHAPTER X.

Revenue Administration.

In Burmese Times; British Administration; Land Revenue; Early Settlements; Settlement of 1867-68; Summary Enhancement of 1880; Subsequent Settlements; Revision Settlements, 1906-07; Capitation-tax; Fisheries; Miscellaneous Land Revenue; General Review; Customs; Excise; Stamps; Salt; Income-tax; Total Revenue. 80

CHAPTER XI.

LOCAL SELF-GOVERNMENT.

PAGE

Moulmein Municipality; Kawkareik Town Committee; District Council; Village Committees; Circle Boards. 89

CHAPTER XII.

EDUCATION.

History; Literacy; Government System; Expenditure. 92

CHAPTER XIII.

PUBLIC HEALTH.

General Health; Malaria; Cholera; Plague; Small-pox; Vital Statistics; Sanitation; Hospitals; Leper Asylum; Ellen Mitchell Memorial Hospital. 95

CHAPTER XIV.

MINOR ARTICLES.

Moulmein; History; Fires; Land Tenure; Food Supply; Newspapers; Town Administration; The Port; The Modern Town; Moulmein Subdivision; The Port; The Kado Kawhnat; Kawhla; Chaungzon Township; Chaungzon; Kwanhla; Pampa and Murigale; Sèbala and Kamake; Kalwi; Kwanyaik; Ywalut; Mudu; Kahnyaw and Kalaw; Kyaikmaraw Township; Kyaikmaraw; Nyaungbinzeik; Karon; Tarana; Kawthat; Dhamathat; Peinnègon; Hnidon; Kawkareik Subdivision and Township; Kawkareik; Kyondo; Kawbein; Kawbauk; Kanni; Nabu-Hnitcha; Kya-in Township; Kya-in Seikkyi; Kya-in; Winyaw Seikkyi; Tagundaing; Amherst Subdivision; Mudon Township; Mudon; Kwandon; Kamawet and Kalawthut; Tagundaing and Pa-auk; Ahmerst or Kyaikami Township; Amherst; Wagaru; Karokpi; Panga; Ye Township; Ye; Hangan; Asin; Taungbon and Thaungbyin; Kawdut and Hnitkarin; Lamaing and Mawkanin; Zibyuthaung; Islands. 100

Glossary 120

Bibliography 121

Index

CHAPTER XI.

Local Self-Government.

PAGE

[illegible] Municipalities; [illegible] Town Committees; District [illegible] Circle Boards.

CHAPTER XII.

Education.

[illegible]

CHAPTER XIII.

Public Health.

General Health; Malaria; Cholera; Plague; Small-pox; [illegible] Sanitation; Hospitals; Leper Asylum; [illegible] Hospital.

CHAPTER XIV.

Minor Articles.

[illegible]

AMHERST DISTRICT.

VOLUME A.

CHAPTER I.

PHYSICAL DESCRIPTION.

Boundaries; General Description; Mountains--Dawnas; Taungbon Hills; Taungnyo Hills; Other Hills; Rivers—Salween; Gyaing; Ataran; Thaungyin; Other Rivers; Geology—The Coastal Area; Mergui Series; Sandstones; Quartzite and Shale Series; Taungnyo Range; Moulmein Limestone; Amherst Hills; Bilugyun and Green Islands; Granite; The Eastern Area—Dawna Gneisses; Mergui Series; Conglomerates of limestone and red sandstone pebbles; Tertiary Beds; Stratigraphical questions which remain to be solved; Hot Springs; Botany; Fauna; Climate and Rainfall; Temperature.

Boundaries.

The Amherst district lies between 14° 56′ and 17° 2′ North and 97° 27′ and 98° 51′ East, and forms a part of the Tenasserim Division of Lower Burma. It is bounded by the Thatôn District on the north, Siamese Territory on the east, Tavoy District on the south and the Gulf of Martaban on the west, and contains an area of 7,105 square miles. On the north, the Salween, Gyaing, Hlaingbwè and Pata rivers form for the most part a natural boundary. On the east the Thaungyin River and the mountains, and on the west the Gulf of Martaban also provide well defined natural boundaries. On the south the boundaries are mainly arbitrary and not so well defined.

The district forms part of the territory ceded by the treaty of Yandabo on February 24th, 1826, at the conclusion of the first Burmese war. By this treaty Assam, Arakan, and the coast of Tenasserim, including the portion of the province of Martaban, east of the Salween, were acquired. The selection of the Salween as the boundary, however, involved a difficulty, as the two mouths of the river embrace the large and fertile island of Bilugyun, and the Burmese maintained that the southern mouth was the real one. The matter was finally settled by floating two cocoanuts tied together down the river to determine by the course they took which was the real mouth. They were ultimately carried out to sea by the northern mouth, and Bilugyun became British territory. The Amherst district at this time was thus the northernmost portion of the British provinces of Tenasserim, and was the headquarters of the administration, which were established originally at Amherst, but afterwards at Moulmein. The newly acquired territory was styled "The provinces of Tavoy,

Mergui, Ye and Eastern Martaban." In 1837 the province of Eastern Martaban was extended by the addition of the province of Ye. In 1862 the Tenasserim provinces were joined to Pegu and Arakan as part of the province of British Burma, and in 1866, on the formation of the Shwegyin district, the boundaries of Amherst district were again enlarged by the addition of the townships of Pagat, Thatôn and Martaban, which had formed part of the "Province of Martaban" since the second Burmese war in 1852. This demarcation held good until 1895, when, on the formation of the Thatôn district, these three townships became part of the new district, and the northern mouth of the Salween again became the boundary of Amherst. The Gyaing forms the continuation of this northern boundary, except that the revenue circles of Kado and Kawtun on its north bank are attached to this district. The boundary with Siam was fixed at the Thaungyin in 1848, and has remained constant. The remaining part of the Siamese boundary south of the Thaungyin was demarcated in 1896, but much of it is now not easily traceable.

The northern boundary of the district from the northern mouth of the Salween follows the Salween as far as the point where the small stream, which forms the northern boundary of the Kado and Kawtun circles, flows into it. Thence it follows the boundary of these two circles to its junction with the Gyaing river. The Gyaing then forms the boundary until it divides into the two streams of the Hlaingbwè and Haungtharaw, when the former becomes the boundary as far as its junction with the Pata stream. The boundary follows the Pata stream in a north-easterly direction to its source, whence it runs approximately north as far as the Hlaingbwè and Mèpalè watershed. It continues along this watershed in a north-westerly direction for about three miles, and then turns north-east across the Mèpalè headwaters and the Mèpalè-Thaungyin watershed to the Thaungyin River. Here the boundary turns south following the course of the Thaungyin River, to its source, the Thaungyin above its junction with the Mèsala being known as the Gawlè. From here the boundary is supposed to enclose the catchment area of the Thaungyin and its western tributaries, but the demarcation has been largely obliterated by time, and with the exception of three heaps of stones at the source of the Gawlè and two blazed trees many miles to the south the boundary marks are not traceable, as was discovered in 1911 in connection with the settlement of a proposed forest reserve which was to have marched with this boundary. The report of the Boundary Demarcation Officer, which received the sanction of Government, is not altogether clear

as to the boundary here. It is supposed to be the main watershed from the cairn near the source of the Gawlè to Mugadok *taung*. On the map accompanying the report there is a note "doubtful whether main watershed" against the part of this boundary line north of Nyaungbin *taung*, where stand the two trees found by the Forest Settlement Officer. Between the cairn and the trees there is no declared boundary mark except a peak cleared of all but a single tree by Mr. Collins in 1895. This peak stands at the head of the Melamaung stream, and the Commission was unable to agree whether it was actually on the main watershed or not. South of Nyaunbin *taung* no question arises, and the boundary follows the admitted watershed, which bends west and then south, as far as Mugadok *taung*. Thence the boundary continues south to Tamokan *taung*, and Titondi *taung* and thence to a cairn on the left bank of the Haungtharaw river, in a straight line between each of these points, being further marked by cairns erected at intermediate points on the right bank of the Menanda stream and on the banks of the Mintharaung and Pankrang and Timaw rivers. From the Haungtharaw cairn, known as Bagge's cairn after Lieutenant Bagge who originally erected it, the boundary continues in a straight line to Salangyan rock, on which is another cairn; thence to Hlaingwasu *taung*, and thence to Khondan rock. Between the last two points are three cairns on the Telu river. The boundary then proceeds in a straight line to Tonban rock, and thence to Peinthanu *taung*, being further marked by three large posts embedded in earth mounds at the spot where the path to Tonban crosses the line. The boundary then proceeds to a large cairn on the left bank of the Mègathat river, passing another cairn at a spot where the Tonban path again crosses the line. From the Mègathat river the line goes on to Supowi *taung* marked by cairns at intervals on the way. From Supowi *taung* the boundary turns north-westward and then south-westward following the main watershed *viâ* Kuye and Krondo to the Hlaingpado *taung*, being marked on the way by numerous cairns. From Hlaingpado *taung* a straight line to the central pagoda of the group known as the Three Pagodas forms the boundary. This demarcation from the source of the Gawlè to the Three Pagodas was the work of Mr. Rawlings, Assistant Superintendent of Police, and cost numerous lives both on this and previous occasions owing to exposure and fever. Mr. Rawlings' report concludes:— "Of the part of the frontier where our work lay, the late Mr. Merrifield wrote as follows: 'This portion of the frontier is literally poisonous; it killed Mr. O'Riley in his first season and three of the Siamese Commissioners; the delimitation killed Lieutenant

Bagge in due course, and nearly every native sent up by either side.' "

From the Three Pagodas the boundary proceeds to Hsadeik *taung*, whence it turns due south along the watershed of the Ye river, which is also the boundary of the Yechaung forest reserve and demarcated as such. At this point a trigonometrical station at a height of 4,233 feet marks the point at which the boundaries of the Amherst and Tavoy districts and Siam meet. Thence the boundary follows the southern watershed of the Hangan stream in a westerly direction to a point a little to the west of Memlo-*taung* where it turns south and keeps to the crest of the main coastal range to a point near the Danithagya which it follows in a westerly direction to the sea. The western boundary of the district is the Gulf of Martaban.

General Description.

The district is divided sharply into four divisions by the physical characteristics of the country. On the west lies the coastal plain including the large and fertile island of Bilugyun. This plain is fertile and for the most part under rice cultivation. It is from five to fifteen miles broad in the north but narrows south of the Wagaru stream and becomes much broken by isolated hills and laterite ridges. In the extreme south of the district the hills come right down to the sea. The Taungnyo hills divide the coastal plain from the riverine area formed by the basins of the Ataran, Gyaing and Haungtharaw rivers which is the second main division of the district. This riverine area falls naturally into three parts. On the west is the basin of the Ataran system, bounded on the west by the Taungnyo hills and on the east by forest-covered laterite uplands. To the north of the upland country lies the basin of the Gyaing system. To the east of the laterite uplands lies a long range of hills which forms the watershed of the upper Haungtharaw river. The narrow valley of the Haungtharaw river forms the third portion of the riverine country. The main characteristics of the valleys of the Gyaing and Ataran are alluvial plains with laterite ridges here and there and most remarkable precipitous outcrops of limestone which rise straight from the plain frequently to a height of over 1,000 feet. The riverine plains are subject to deep flooding annually and consist either of rice fields or of dismal stretches of swamps, *kaing* grass and stunted woodland growths. The uplands are laterite and gravel with little or no humus, and will support nothing but trees. The third physical division of the district consists of the mountainous country to the east, of which the Dawna range is the chief feature and the Thaungyin river the eastern boundary. The mountains are covered with forest, and

villages are few and small and cultivation is confined to the immediate neighbourhood of the villages. The fourth principal division is another patch of similar mountainous country to the south, which contains the basin of the Ye River.

Mountains—The Dawnas.

The Dawnas are the principal mountain range in the district. This range rises to a height of 6,823 feet at Mulayit in 16° 11′ North and 98° 32′ East. The range is wild and covered with a dense forest growth in which game abounds. In the south offsets of the main range from the patch of mountainous country of which the southern part of the district consists. And from this mountainous country, the peaks of which are usually rather more than 2,000 feet high commence the two subsidiary ranges the Taungbon or Thameindut Hills and the Taungnyo Hills which though usually of no great height are prominent physical features of the district.

One of the main routes from British territory into Siam crosses the Dawnas to Myawaddy, an old and once fortified town on the left bank of the Thaungyin in 16° 42′ North and 98° 32′ East. A Public Works Department road runs from Kyondo on the Haungtharaw to Myawaddy, and very fine views can be obtained *en route*. The southernmost route into Siam runs by way of the pass at the Three Pagodas, which is twenty-five days from Bangkôk. The prospect from the summit of this pass was described by Assistant Surgeon Helfer in 1838 or 1839 as " in many respects grander than the scenery in Switzerland, on the Appennines or the Jura Alps." There is another route which leads from the Haungtharaw river in 15° 41′ North and 98° 35′ East to the Siamese village of Phra Mayklaung, and another track up the Menanda stream, a tributary of the Haungtharaw, leads northwards to the sources of the Thaungyin.

The Taungbon Hills.

The range variously known as the Taungbon, Mètharaw or Thameindut Hills starts from the southern hill mass and extends in a northerly direction to where the Haungtharaw river turns west not far from Kawkareik. The range forms the watershed between the Haungtharaw and Ataran rivers and nowhere rises to a height of 2,500 feet.

The Taungnyo Hills.

The Taungnyo range also starts from the southern hills and runs northwards not far from the sea until it is broken by the Salween and Gyaing at Moulmein. The range continues in the Thatôn district as the Martaban Hills. The greatest height of the range is a little under 2,500 feet but most of the

ridge is much lower. It divides the coastal plain from the valley of the Ataran system.

Other Hills.

The low ridge of hills in Bilugyun is a prominent land mark but does not attain any great height. There are a number of isolated hills along the coast in Amherst and Ye Townships of which the Palein Hill between Ye and the sea and the hill near Amherst are the most important.

Rivers—Salween.

The largest river in the district is the Salween, which falls into the sea below Moulmein, and to it Moulmein owes its existence as a port. Despite its great size and the length from its unexplored source in the interior of the continent, it is not navigable for sea-going vessels above Moulmein, and even navigation into the port is intricate for vessels of considerable size. The northern mouth is altogether impracticable for shipping. Just above Moulmein the Salween is joined from the eastward by the Gyaing and Ataran.

Gyaing.

The Gyaing is a broad river much intersected by islands and shoals, and flows almost due west from the point where it is formed by the junction of the Hlaingbwè and Haungtharaw, the former flowing from the north and the latter from the south. It is navigable for country craft and small launches throughout the year.

Ataran.

The Ataran is formed by the junction of the Zami and Winyaw streams in the south of the district. It is a narrow and deep stream flowing between high banks. It is tidal throughout its length, and the Zami and Winyaw streams also retain a tidal character for a remarkable distance above their junction. Steam launches run up the Ataran and up the Zami as far as Kya-in Seikkyi, and the Winyaw is also navigable for small launches as far as Seikkale.

Besides the Hlaingbwè and Haungtharaw, Zami and Winyaw both the Gyaing and Ataran possess a large number of smaller tributaries, some of them, such as the Kayin stream, which flows into the Gyaing at Karit, navigable by country boats for a considerable distance.

Thaungyin.

The Thaungyin, which rises in the Dawnas in 16° 27′ North and 98° 50′ East at the height of 1,100 feet above the sea, flows northwards into the Salween. Its course is marked by rapids and falls, and its chief use is for the transport of timber extracted on the hills on either side of it.

Other Rivers.

The Ye River in the extreme south of the district rises in the main range and flows into the sea seven miles below Ye. It is navigable for river vessels of fair size to a point a mile or two

above Ye. Above that point it is obstructed by rapids and is only navigable for boats of very small draught.

The Wagaru stream rises in the Taungnyo range, and flows westwards into the sea near Amherst. Its chief importance lies in the fact that it provides Amherst with its harbour, which was one of the considerations which led to the selection of that site originally for the headquarters of the Tenasserim Provinces. Besides the rivers already mentioned there are innumerable smaller streams which help to carry off the enormous rainfall characteristic of this part of the province. The water-ways are a most important feature of the district, providing, as they do, the main means of communication, though, with the exception of the Salween, none of them are of any great size.

Geology.

The material contained in this section is derived from a note by Mr. E. L. G. Clegg, Geological Survey of India. The geological survey of the district is still imperfect. Detailed survey has only been carried out in the coastal area and some parts of the district contiguous to the coastal area. The little that is known of the Dawnas and the interior generally is derived from a short visit by Dr. G. de P. Cotter to the tertiary oil shale basins in the Kawkareik Township. As the rocks of the coastal area and those of the Dawnas have not been systematically linked up by mapping or otherwise correlated, short accounts of these areas will be given separately.

The Coastal Area.

The geology of the Coastal area was first noted on by T. Oldham in his "Note on the Coal Fields and Tinstone Deposits of the Tenasserim Provinces", (Records of Government of India Home Department No. X, 1856), and later by Theobald in the "Geology of Pegu" (*Memoirs Geol. Surv. Ind. X*). The former introduced the terms Mergui and Moulmein series, the first for the well developed series of rocks preponderating in the south and forming the lower division, and the second for the northern upper division, the most conspicuous member of which is the massive limestone which forms so prominent a feature around Moulmein and in the Salween Valley. In recent years the systematic survey of the Amherst district was commenced by Mr. P. Leicester under the superintendence of Dr. Coggin Brown and it is from their reports that the following description of the coastal areas in which the following divisions have been mapped by Mr. Leicester is taken:—

(1) Alluvium.
(2) Laterite.

(3) Moulmein Limestone.
(4) Sandstone Quartzite and Shale Series.
(5) Mergui series.
(6) Granite intrusive into (5) in the Ye area and into (4) in that of Amherst.

Mergui Series.

The geological features of the Mergui series in the Ye area are stated by Mr. Leicester to resemble their occurrence in Mergui where they are described by Brown and Heron (*Mem. Geol. Surv. Ind.* XLIV. Pt. 2, p. 178, 1923) as ' an assemblage of sedimentaries highly folded and indurated but little metamorphosed ' and ' so extensively intruded by masses of granite in the form of large and small bosses that the area occupied by granite outcrops is nearly as large as that occupied by the Mergui series '. The predominating rock is a hard blue slate roughly cleaved and often quartzitic whilst associated with the slates are quartzites which in places become somewhat argillaceous. The outcrops of the Merguis strike from N. 25°W. to N. 40°W. and dip either vertically or steeply to the east.

Sandstone, Quartzite and Shale Series, Taungnyo Range.

In the Amherst area the Taungnyo range which is the continuation of the Thatôn ridge on the left bank of the Salween, stretches southwards from Moulmein and consists of an unfossiliferous series of sandstones, quartzites and shales with a N.N.W.—S.S.E. strike and an easterly dip of about 45° in the north, changing in the south, where the ridge widens, to 25°. Laterite occurs on either side of the range. To the west lie the alluvial plains of Mudon and the main mouth of the Salween, broken only by the Amherst Hills and the laterite surrounding them, while to the east of the Taungnyo is a monotonous forest covered plain revealing nothing but lateritic clay and rubble with a bed-rock of laterite. Patches of alluvium deposited by the Ataran river, the Winyaw river and their tributaries occur in the plain whilst further east rise the precipitous hills of crystalline Moulmein limestone.

Moulmein Limestone.

Nowhere is the Moulmein limestone found in direct contact with the rocks of the Taungnyo range.

Amherst Hills.

The Amherst hills are lithologically the same as the Taungnyo range; the sandstones and shales are however, in places considerably veined with quartz and may be traced through metamorphosed sandstones and schists' to the gneisses, granulites and phyllites of the coast near Amherst, which have been subjected to *lit-per-lit* intrusion by granite gneiss. The general dip of the rocks of these hills is to the west, as opposed

to the easterly dip of the main ridge while the strike, N.N.W.—S.S.E. is the same.

Bilugyun and Green Island.

The low ridge which crosses Bilugyun island contains argillaceous quartzites and grey slates penetrated in places by coarse tourmaline-garnet-muscovite pegmatites, tourmaline granite and white quartz veins whilst the remainder of the island is alluvial. Green Island consists of a very intimate mixture of rocks from more or less normal hornblende biotite granite in the south-west, through banded intrusion gneiss in the middle, to a succession of *lit-per-lit* injections of aplitic granite into hornblende biotite schists in the north.

Granite.

The typical granite of the Ye area is a pale medium-grained biotite granite sometimes containing hornblende and having sphene as the most usual accessory mineral. The best exposures of this granite are found along the sea coast and on the islands lying just off the coast.

The Eastern Area.

For the geology of the eastern area resource has been made to Dr. G. de P. Cotter's paper on 'The Oil Shales of Eastern Amherst, Burma, with a Sketch of the Geology of the Neighbourhood'. (*Rec. Geol. Surv. Ind.* Vol. LV., p. 273, 1923) from which the following account is taken.

The rocks of Eastern Amherst have been divided into the following formations:—

(5) Tertiary Beds.	
Division B.—Shales with oil sales interbedded.	Probably Newer Tertiary.
Division A.— Sands conglomerates and Boulder Beds.	Ditto.
(4A) Conglomerates of limestone and red sandstone pebbles.	Also found at Kalaw; may be part of the Red sandstone series of Kalaw or later.
(4) Red Sandstones. (Unconformity)	Equivalent to the Kalaw Red Sandstones probably Jurassic.
(3) Kamawkala limestone. (Junction with following not seen.)	Lower Mesozoic probably Triassic.
(2) Hornblende Quartz Schists near Tawokywa. (Junction with following not seen.)	Probably Mergui series (Pre-Cambrian).
(1) Dawna Gneisses and Schists.	Probably Archaean.

Dawna Gneisses.

The Dawna gneisses are the oldest rocks of the district and are confined to the Dawna range; they consist of biotite granite gneisses, tourmaline gneisses and mica schists and are correlated by Cotter with the ancient gneisses with intruded granites seen by Clegg (*Rec. Geol. Surv. Ind.* LX. p. 292, 1927), in the Yunzalin Valley to the north and the Mogôk gneisses of Katha described by La Touche (*Mem. Geol. Surv. Ind.* XXXIX, 1916).

Mergui Series.

With the Mergui series Cotter doubtfully correlates—(1) whitish clays and grits seen between milestones 10 and 12 on the road running east from Kyondo.

(2) Blue shale and mudstone at the 20th milestone on the same road.

(3) A well-bedded greenish gray hornblendic quartz schist which dips steeply to the north-east, about 2$\frac{3}{4}$ miles south-west of Tawok on the west bank of the Mèpalè river.

Kamawkala Limestones.

The Kamawkala limestones form the core of the mountain ranges east of the Dawna ranges; they are exposed near the Htichara forest bungalow about three miles north of Htichara and extend northwards to join up, in all probability, with the limestones of the Kamawkala gorge of the Thaungyin river 15 miles to the north. The limestone is unconformably overlain by the Red Sandstone series from beneath which it outcrops both in this main exposure which runs north from Htichara to Kamawkala and also in several minor inliers in the hills north-east of Htichara and in the Thaungyin river. Similar limestones are found south and west of Phalu and in the hills south of Thingannyinaung. The hill ranges in Siam east of the Thaungyin river are also probably limestone as they present the same castellated and turretted profiles and probably form part of the same series. The limestone is of a grey colour, hard and crystalline, frequently shewing a network of veins of calcite. It is usually vertical or steeply dipping and generally strikes N.N.W., that is, parallel with the mountain chains of the area; it is frequently contorted and crushed. Fossils have been collected from it in localities between Phalu and Kamawkala and descriptions of this fauna have since been published (*Rec. Geol. Surv. Ind.*, Vol. LXIII, p. 155, 1930), there being an unanimity of opinion among specialists who have examined it that it is undoubtedly Trias and probably Norian in age.

The Red Sandstone Series.

The Red Sandstone series of East Amherst together with the Kamawkala limestone occupies all the hilly country east of Htichara, the former being easily distinguished at a distance from those of limestone by their rounded contours contrasting with the rugged pinnacles and castellated profiles of the limestone hills. The older limestones protrude in places through the Red Sandstone series and Dr. Cotter infers that the craggy profiles and steep conical hillocks of the former are due in large measure to a pre-Jurassic denudation, which, after having been concealed during the Cretaceous and Tertiary periods by covering deposits of Jurassic Red Sandstone is again becoming partially revealed in recent times by the continued denudation of this sandstone. The sandstones are lithologically very similar to the Kalaw red sandstones from which a flora indicating a Jurassic age has been collected. They have as their typical and most predominant rock a pink or brick-red to purple sandstone of fine to medium grain, often pebbly, whilst associated with it are clays of colours varying from grey to cherry-red, conglomerate bands and sandstones of a buff colour.

Conglomerates of limestone and red sandstone pebbles.

Associated with the red sandstone is found a peculiar conglomerate composed of pebbles or boulders of limestone (Moulmein or Kamawkala limestone) and pebbles of red sandstone in a matrix of red sandstone, an exactly similar conglomerate to that which occurs at Kalaw.

Tertiary Beds.

Resting unconformably on the previous formations described are Tertiary rocks which are divisible into two groups:—A, a lower group of sands, boulder beds and conglomerates and B, an upper group mainly of shales in which oil-shales are developed; they lie in synclinal basins or *cuvettes* and exhibit a fresh water facies, the shales containing numerous fish-remains and dicotyledonous leaves; they can be compared with similar Tertiary basins in the Shan States and Tavoy which have been mapped by La Touche (*Mem. Geol. Surv. Ind.*, XXXIX, 1916), and Coggin Brown and Heron (*Mem. Geol. Surv. Ind.* XLIV. Pt. 2, 1923), which generally contain lignites although oil shales have been found in them also in Mergui (*Rec. Geol. Surv. Ind.* LIV. pp. 342, 343). The main Tertiary basin, the Htichara, occurs in the open valley drained by the Mèpalè river between the Cheohko *taung* range and the Dawnas. Other basins are found bisected by the Thaungyin river partly in British and partly in Siamese territory; the one south of Myawaddy is referred to by Dr. Cotter as the Phalu and that to the north as the Mèsauk—Mèthalum—Mèlamat basin.

Geologically three important scientific questions require yet to be solved in the stratigraphy of the Amherst District:—

Stratigraphical questions which remain to be solved.

(1) The definite relations of the series of sandstones and shales (more or less metamorphosed in places) at Martaban station, from the shales of which two Permian bivalves, *Palaeonodonta okensis*, Amalitsky and *Palaenodonta subcastor* Amalitsky, have been collected, with the unfossiliferous sandstones, quartzites and shales of the Taungnyo range in the Amherst District. These have been correlated on general grounds.

(2) The relations of the Moulmein limestone with the Kamawkala limestone. The former has always been regarded as Carboniferous from the evidence of fragmentary fossils referred to the genus *Productus* collected at Pa-an whilst the latter has been referred to the Norian stage of the Triassic system (see above).

(3) The relations of the Taungnyo slates, sandstones and quartzites of the Amherst area with the Mergui series of Ye and further south.

Hot Springs.

Hot springs occur in numerous parts of the district. They are very numerous east of the Dawnas where the temperature of the water is sometimes very high. A Karen who fell in one of these a few years ago was scalded to death. Some of these springs appear to be connected with siphons as they rise and fall daily. Some of the springs vary in temperature even during twenty-four hours and some of them, notably one on the bank of the Mègala in the Taok Forest Reserve, are said to be of medicinal value. A hot spring and a cold spring frequently issue very close to one another. West of the Dawnas the most important group of hot springs is at Yebu on the Ataran, but there are several others. The Yebu springs are situated in groups in small knolls of firm laterite soil, whence the water bubbles over the sides and is carried away in drains about a foot or two in width for use in the paddy fields (after cooling) and in cocoanut gardens situated close by. The temperature of the water is about 134° Fahrenheit. Its composition was investigated in 1895 by the Chemical Examiner, Burma, who reported as follows:—

"The solids vary from 266.3 to 275.4 parts per 100,000, rendering the water a mineral spring of the type known as bitter water. The chief constituent is sulphate of lime, forming over 80 per cent of the total solids. The other constituents are sulphates of magnesium and sodium chloride and silica. Nitrates are almost completely absent. The water has no medicinal value, and its only value as a fertilizer is from the sulphate of lime it contains."

The report as to the springs' medicinal value is of interest as contrasting wiht the report of Dr. Helfer quoted in the British Burma Gazetteer. He says:—" Their medical properties would render them excellent remedies in a number of diseases," and the local inhabitants do make use of them as medicinal baths, regarding them as giving good results in cases of gout and rheumatism.

An account of the minerals occurring in the district will be found under the heading 'Minerals' in Chapter V.

Botany.

The Botany of the district has been but little studied. It is of the usual sub-tropical type met with in the wet areas of Lower Burma, and ranges from the swamp variety near the sea to the evergreen forest type in the mountainous area on the east. There is abundant timber, particulars of which are given in Chapter V. The *dhani,* toddy and cocoanut palms abound, as well as a great variety of fruit trees, which include the doorian and the mangosteen. Orchids are common both in the plains and in the hills. Notable peculiarities in the district flora are the flowering tree *Amherstia,* which is said to be peculiar to this district and is of considerable beauty, and what is possibly a previously unknown variety of wild durian tree found on the Dawnas.

Fauna.

The principal members of the cat tribe found in the district are the tiger and the leopard, the former being very numerous in some parts. Elephant, bison, and *saing* (*bos sondaicus*) are to be found in the more hilly tracts. Wild pig are very numerous, and cause great damage to crops. The rhinoceros is to be found in some parts, but is not common. Of the deer tribe, the *gyi,* or barking deer and sambhur, are very common.

Monkeys and gibbons are numerous in the hills, and the former are very common on the limestone out-crops. Both the Malayan bear and the Himalayan black bear are found. A sort of wild goat is said to be found on the limestone out-crops but whether this is a true wild goat or an escape from domestication seems uncertain.

In the Ye Township alligators are to be seen in the numerous creeks, and the Malayan tapir is also said to have been found. Of game birds snipe, duck, quail and jungle fowl are the most common. Pigeons, doves and birds of the crane variety are very numerous. Snakes are not exceptionally plentiful, possibly owing to the annual submergence of so much of the plains of the district. They are, however, by no means absent, and include deadly varieties, such as the cobra and Russell's viper, the latter in particular being a bane to rice cultivators; especially in

the alluvial plains of Mudon, Bilugyun and Amherst. The Russel's viper is said not to occur in the southern part of Ye Township but may be extending its area southwards.

Climate and Rainfall.

Like the other coastal districts of the Tenasserim Division, the district shares with Arakan the distinction of being one of the wettest parts of Burma. From the end of November to the end of April or beginning of May there is little or no rain, and, though the heat in March and April is trying owing to the humidity of the climate, the dry weather is on the whole healthy. The wet period is from May to October when the bulk of the average rainfall 180—200 inches falls. It is by no means uncommon for 7 or 8 inches of rain to fall in the 24 hours, nor for the fall to continue with but trifling intervals for a week or ten days in succession. In the course of a cyclonic storm during May 1908 no less than 22 inches of rain were recorded in 24 hours. In the finer periods of the rainy season the climate is apt to prove trying owing to the sudden changes of temperature caused by heavy chilly rainstorms alternating with hot sunshine. June, July and August are usually the wettest months. The heaviest monthly falls recorded at Amherst between 1912 and 1931 were 69.74 inches in August 1923 and 68.17 inches in July 1930. The smallest recorded fall in the three wettest months was 22.32 inches in June 1915. September shows falls varying from 13.95 inches in 1919 to 50.05 inches in 1918. Rainfall in October varied between 1.68 inches in 1916 to 26.14 inches in 1915 and rainfall in November varied from *nil* to 12.33 inches (1912), at the same station during the same period. The rainfall is usually higher in Ye than in Moulmein and usually decreases as one moves inland. East of the Dawnas the average rainfall is between 80 and 90 inches.

Temperature.

The hilly parts of the district experience quite a low temperature in the winter, as is to be expected from their altitude, but the lowlying country along the coast and rivers is hot and has no true cold weather.

The nights and early mornings are however frequently quite cold in January and early February, and are usually cool enough not to be unpleasant except in April, early May, October and the first half of November. The variation of temperature in the hilly areas is much greater than in the plains. Temperatures down to 37°F. have been recorded at Mèpalè. In the plains the variation is usually not large. The mean temperatures at Moulmein deduced from records up to the year 1920, which are the latest available, show that the mean daily maximum temperature

varies between 83°F. in July and August and 94°F. in March and April, while the mean daily minimum temperature varies between 65°F. in January and 76°F. in April. The mean monthly maximum varies from 85°F. in August to 98°F. in April, while the corresponding minimum varies from 60°F. in January and December to 72°F. during the rainy months. The diurnal variation during the rains is frequently not more than 10°F. In the dry weather the diurnal variation is not usually greater than 25°F.

CHAPTER II.

HISTORY AND ARCHÆOLOGY.

History—Môn Period; Burmese Period; First Burmese War; Annexation; Second Burmese War; Subsequent History; Archæology; Ancient Towns; Pagodas.

History—Môn Period.

The Amherst district has always been one of the main strongholds of the Talaing or Môn race, which still forms the bulk of the population. The Môns came from the north, and went not only to Burma but also to Cambodia, and civilised both countries. Their capital in Tenasserim was Thatôn, founded about 600 B.C., and it was from Thatôn that Talaings went north and founded Hanthawaddy (Pegu) in 573 A.D. For centuries the Amherst district was disputed territory between the Môns and the Siamese; and when Thatôn became merged in the kingdom of Pegu and Anawrata ascended the throne of Pagan in 1010 A.D., the long struggle began between the Môns and the Burmese, the former being thus placed between two fires. It is little to be wondered at that when the British occupation began the country was found to be poverty-stricken and almost depopulated. Thatôn is said to have been completely destroyed by Anawrata, and the country east of the Salween fell into the hands of the Siamese about the same time. At the end of the 13th century the kingdom of Martaban was founded by Wariyu, an ally of Siam, and was shortly afterwards amalgamated with Pegu, whose king Wariyu killed and succeeded. This amalgamated kingdom then absorbed Amherst, Tavoy and Mergui districts to the exclusion of the Siamese, who, however, regained posession in the 17th and early part of the 18th centuries, when the Môns were fully occupied with incessant wars with the Burmese. In 1752 the Môns scored a signal triumph by capturing Ava and carrying off the King of Burma and all his family as prisoners.

Burmese Period.

The retribution which speedily followed at the hands of Alaungpaya resulted in the expulsion of the Siamese from Tenasserim

and the invasion of Siam itself. Alaungpaya died in 1760 within two marches of Martaban on his way back from Siam. Both he and his successors endeavoured to extinguish the Môn nationality by proscribing the language. Its survival in this district to so much greater an extent than elsewhere is to be attributed to the feebleness of the rule of the Burmese governor at Martaban and to the annexation of the country east of the Salween by the British, which resulted in a large influx of Môns anxious to escape from Burmese rule. The effective sway of the Martaban *Myowun* never extended further than a few miles south of Moulmein. In 1814, 30,000 Môns are said to have emigrated from the district into Siam. In 1826, the very year of the annexation, 16,000 of the population were captured by a Shan invasion, roped together by the ears, and marched off to Raheng and Zimmè to be sold as slaves.

In 1827, on the other hand, after British rule had been established, 20,000 Môns immigrated to Amherst under the leadership of one Maung Sat and his second-in-command Maung Ngan after an abortive rising against the Burmese in Rangoon. Half the immigrants settled up in Ataran and half in Wagaru.

First Burmese War. Annexation.

The first Burmese war was formally declared on the 5th of March 1824, and in 1825 Sir Archibald Campbell took Syriam, Tavoy, Mergui and Martaban with practically no opposition. By the treaty of Yandabo, concluded on the 24th of February 1826, Assam, Arakan and the coast of Tenasserim, including the portion of the province of Martaban east of the Salween, were ceded to the British.

The difficulty as to which of the mouths of the Salween was to be taken as the boundary has already been referred to, and was settled by the course taken by the cocoanuts set adrift in the river. Mr. Crawford, who had been sent as Civil Commissioner, selected Kyaikkami, afterwards called Amherst, after Lord Amherst the Governor-General, as the site for the capital of the new territory, but in 1827 Sir Archibald Campbell, who had been appointed Chief Commissioner, transferred the headquarters to Moulmein for strategical reasons. The district has none the less continued to derive its name from its original headquarters. The advantage of Moulmein was its situation opposite Martaban, whence gangs of Burmese robbers made organized raids into British territory. No attention being paid to British remonstrances, a force was despatched across the river and Martaban was burnt to the ground, a salutary lesson which did much to put a stop to these raids. Moulmein at this

time was nothing but a small fishing village, and as a place of any importance is thus entirely a British creation. So poor and sparsely populated was the country that the question of the advisability of returning it to the King of Burma was seriously debated. In 1826 Mr. Crawford ascended the Ataran almost as far as the junction of the Zami and Winyaw, but can have seen in the country he traversed little promise of future prosperity, for even in the British Burma Gazetteer of 1880 the river is still described as "used only by boats, as the country it taps has but a small population and no extensive areas of land under cultivation." Today the same journey as Mr. Crawford undertook is performed daily by launches which pass between fertile paddy lands the whole of the way. In 1826 however the total population of Mergui, Tavoy and Amherst, as far north as the mouth of the Thaungyin, was estimated at only 70,000, or less than a seventh of the population of the modern Amherst district at the census of 1931. It was not until 1831 that it was finally decided to retain possession of the country.

In 1829 Sir Archibald Campbell was succeeded by Mr. Maingy, and the province was placed under the direct control of the Governor of Bengal. Subsequent Commissioners were Blundell, Broadfoote, Durand, Colvin, Bogle, Phayre and Fytche. Conditions immediately after the annexation were anything but satisfactory. The troops in Moulmein were being fed on buffalo beef, salt junk and biscuits; bread cost a rupee for four small loaves; fish and vegetables were scarce; onions, flour and sugar stood at prohibitive prices.

To secure a supply of cattle for the troops and thus diminish the serious drain on the scanty local resources, and to induce Chinese caravans to venture as far as Moulmein, a mission was despatched to the Northern Labaung and Zimmè in 1830 and again in 1834. Satisfactory results were obtained as regards the cattle, a thousand of which were secured as the outcome of the first mission alone. Despite frequent further missions, however, it was not until 1847 that the suspicions of the Zimmè chiefs were sufficiently dispelled to permit them to allow Chinese caravans to pass through to Moulmein.

Relations with the Burmese Government continued uniformly unsatisfactory, the Salween islands, of which the sovereignty over Bilugyun alone had been finally settled, being a continual source of friction. The harbouring of dacoits in Burmese territory, a dispute over the use of a rope across the Salween to catch drift timber, a wanton attack by the Burmese on a survey party, the erection of stockades and massing of troops at Martaban by King Tharawaddi in

1840, and above all the futile policy of pin-pricks so dear to the Burmese statesman, all in turn rendered the maintenance of friendly relations between the two administrations impossible.

Relations with Siam, which had opened in 1830 with a deputation from Raheng bearing overtures from the King of Siam, were generally satisfactory. A mission was despatched to Bangkok in 1831, which secured the release of certain kidnapped Môns. Other missions followed from time to time, and in 1848 it was amicably agreed that the Thaungyin should be our boundary.

The Second Burmese War.

The second Burmese war broke out in April 1852, and on the 5th of the month Martaban was shelled by warships, troops were landed under cover of their fire, and by 8 A.M. Martaban was taken with a loss of seven European rank and file and one havildar. An attempt by the Burmese to recapture it three weeks later was a complete failure. The rest of the military operations were conducted elsewhere, so that the Amherst district had little share in them beyond serving as a base and providing hospitals for the sick and wounded at Amherst. The war closed with the proclamation of the annexation of the province of Pegu on January 20th, 1853.

Subsequent History.

In 1862 Tenasserim was joined to Pegu and Arakan to form the province of British Burma. In 1866 the boundaries of this district were enlarged by the addition of the Martaban, Thatôn and Pagat townships, but these were again taken away at the formation of the Thatôn district in 1895. The history of the various internal affairs of the district is dealt with in the appropriate chapters; that of the district as a whole becomes merged from 1862 onwards in the history of the province of British Burma.

Archæology.

The troublous history of the district before the annexation, and its consequent poverty-stricken and sparsely populated condition sufficiently account for the paucity of remains of considerable antiquity or archæological interest, but no detailed archæological survey of the district has yet been carried out, and a thorough exploration of the limestone caves and possibly also of town-sites such as Ye and Wagaru might produce some discoveries of archæological interest.

Ancient Towns.

There are scattered remnants of old Môn towns, but tradition seems to have preserved but little information about them.

Such, for example, is the square fosse in the jungle in Payangazu *kwin* on the left bank of the Winyaw. This is said to be the site of an old Môn fortified town, and is known as Myohaung, but, beyond eliciting that its inhabitants emigrated to Siam, a search for information is only rewarded by the assurance that a father's mother could not remember anything about it. There is also a ruined Môn city in the forest above Myohaung near Kawkareik, where quite an appreciable portion of the wall is left. Nothing is known of its history. Details are, however, forthcoming about the remains of two earth and stone walls and a moat on the bank of a stream not far from Ye, which are said to have encompassed a large city called Meinma Myo (Woman City), inhabited exclusively by vestals. Male intruders were beheaded on merely approaching the gates. The head priestess on one occasion emerged from the gates and met such a one, but the *dah* slipped from her hand as she was in the act of beheading him, whereupon she married him, and all the other vestals followed her example by taking husbands. The town was eventually sacked and destroyed by one Bogale, a man of unknown race, who lived in the Thuthe district adjoining the coast lands on the south-west of the town. He carried off the women and treasure to his own place. The Thuthe district has since been blotted out by the sea, its only relics being old pots and domestic utensils which are sometimes found on the beach. Near the site of the Meinma Myo is a cairn of stones said to mark the spot where male intruders were beheaded. At Karon (the "Farm" caves), Kyaikmaraw, Dhammathat, Kawbein, Mekaro and other places are well-known stalactite and stalagmite caves. As a rule, they possess few architectural features but the rock is frequently ornamented and images of terra cotta, wood, stone, marble and the usual stucco and small pagodas are found in them. There are abundant signs of gilding and also some signs of glazing. In the 18th century, when Môn country was conquered and devastated by Alaungpaya, King of Ava, valuable Môn manuscripts were deposited in the caves for safety. Lieutenant-Colonel J. J. Cronin, I.A., Commissioner of Tenasserim Division, writes as follows:—

"In some of these caves in Amherst and Thatôn, there is reason to believe that the blind fish hitherto associated with the Mammoth Caves in Kentucky are to be found. On at least one occasion scientists have searched for them, but are reported not to have visited the caves in which they are to be found."

Pagodas.

The chief objects of antiquarian interest are, as elsewhere in Burma, the pagodas. Bilugyun island alone contains upwards of 60

pagodas, of which the most famous is the Kalaw pagoda, built about 100 B.C. by two Rishis over a hair of Gawtama and repaired 500 years ago by Ma Kun Taw and again seven years ago by the Kanmane *pongyi*.

On the ridge which runs through the town of Moulmein are several pagodas of considerable beauty and antiquity. Of these the principal is the Kyaikthanlan pagoda, which is supposed to contain a hair of Gawtama. The tradition respecting its foundation in the year 875 A.D. is rather characteristic. It is to the effect than an invading Shan or Siamese army and a Peguan army were confronting each other on the east bank of the Salween, and mutually decided that, instead of fighting, they should compete in the erection of two pagodas of certain dimensions. While the Shans or Siamese were preparing the hill and necessary bricks, the Peguans built a sham pagoda of paper and bamboo, which effectually deceived their enemies and induced them to withdraw in accordance with their compact. The present pagoda was erected to celebrate this bloodless victory, its name signifying " The Pagoda of the overthrow of the Siamese." It was enlarged by Ponnurat, King of Moulmein and again in 1538 A.D. by Wareru, King of Martaban. It was repaired in 1831 with funds collected by public subscription and has subsequently been regilded on various occasions at the last of which in 1930 Sir Joseph A. Maung Gyi, then acting Governor of Burma, took a leading part.

Further south along the same range is the Uzina pagoda, so called after its restorer who expended Rs. 6,000 on it in 1838. It is said to have been originally built in the 3rd century B.C. by Rishi Manawzina with the aid of Meindi, a merchant, over a hair of Gawtama. Its former name was Kyaikpatan, or " white pagoda ", from the colour of the hill on which it stands.

On the same hill stand the Pathada, Datke and Kyaikmalaw pagodas, all reputed to contain hairs of Gawtama, and all undoubtedly of considerable antiquity, though little information about them is forthcoming. There is a similar lack of information about the Taungnyo and Nattaung pagodas, which are also reputed to be ancient. Close to the river bank on the north of Moulmein stands the Kyaikpanè pagoda, which is said to have been erected in the eighth century A.D. by the Peguan King Baneseik Saw to commemorate a victory over the Shans and Siamese.

Near Amherst Point on the rocks about three hundred feet from the beach is the Yelè pagoda within a hundred feet of which no woman in allowed to approach. The Môn name of Amherst, *Kyaikkami, i.e.,* " the floating pagoda, " is said to be derived from it.

The tradition is that the pagoda came floating on the sea and was stranded on the present ridge of rocks. It derives its sanctity from the fact that owing to cross currents, the base of the shrine is never touched by sea-water even at high flood. Near Lamaing village in Ye is the Kelatha pagoda built in the 6th century B.C. by Rishni Muni Bala over eight hairs of Gawtama which were obtained at the same time as those given to Taphussa and Bhallika which are enshrined in the Shwedagon Pagoda at Rangoon. The annual festival of the Lamaing pagoda is held in March and is largely attended by Buddhists from all this part of the Tenasserim Division. Further information as to what is known of the archæology of the district is contained in the "Amended List of Ancient Monuments in Burma" (Government Press, Rangoon 1921), "Notes on an Archæological Tour through Ramaññadesa" by Taw Sein Ko and "Notes on Antiquities in Ramaññadesa" by Major R. C. Temple in "The Indian Antiquary", Volumes XXI and XXII, 1892 and 1893 (Education Society's Press, Byculla, Bombay).

CHAPTER III.

The People.

Population—Density; Growth; Distribution; Races; Môns; General Character; Villages; Houses; Clothing; Food; Religion; Karens; Burmese; Shans; Taungthus; Tavoyans; Natives of India; Chinese; Other Races.

Population.—Density.

The population of the district at the last census (1931) was 516,233 giving a density of 73 persons to the square mile. The density of population varies greatly from township to township. Thus in Moulmein Township which is practically all an urban area the density is 375 persons per square mile. In Chaungzon and Mudon which are the most thickly populated townships after Moulmein the density is 321 and 268 per square mile respectively. In Kyaikmaraw and Amherst the density is 123 and 127 respectively, while in the townships of Ye, Kawkareik and Kya-in which contain large areas of almost uninhabited forest the density is 52, 47, and 20 per square mile respectively. The number of males exceeds the number of females in all the racial divisions admitted in the census. The actual excess of males over females is 25,121 but this indicates a much greater discrepancy than

really exists, owing to the number of Indian immigrants who have come to Burma without their womenfolk. The excess of Indian males over Indian females is 17,099, so that the excess of males of other races over females of other races is only 8,022.

Growth.

Reference has already been made to the scantiness of the population at the time of the annexation, consequent on the incessant strife between Siam and the kingdom of Pegu and the large emigration of Môns to Siam to escape the Burmese rule. After 1826 the population rose very rapidly owing to the influx of Môns from the neighbouring Burmese territory and to the immigration of natives of India to Moulmein attracted by the newly opened prospects of trade. At a moderate computation some 20,000 persons crossed from Burmese territory into Tenasserim in the first few years, with the result that the food-supply proved inadequate, and rice had to be procured from Ye and Tavoy. Whereas in 1826 the population of the whole of the new Tenasserim provinces was estimated at only 70,000, in 1855 the population of the Amherst district alone was returned as 83,146, which in 1872 had increased to 129,948, and in 1881 to 180,738. The census of 1891 showed a total of 233,539, that of 1901 300,173, that of 1911 367,918, that of 1921 417,910 while the last census shews a further increase.

Distribution.

The distribution of the population between the various townships in 1931 was as follows:—Moulmein, 81,627; Chaungzon 62,210; Kyaikmaraw, 66,534; Mudon, 72,844; Amherst, 38,325; Ye, 56,535; Kawkareik, 77,005; Kya-in, 61,333.

From the earliest times the population, exclusive of that of Moulmein, has been most dense in Bilugyun and the plains north and east of Moulmein. There has been nothing to attract settlers to the hilly parts of the district on the east, where moreover large areas have been constituted forest reserves, so that the bulk of the population is still to be found in the paddy plains in the centre and west of the district. Exact comparisons between the distribution of the population in 1872 and 1931 are hardly practicable owing to alterations in the boundaries of the district and townships, but the main features, with allowance for extension of cultivation and consequent increase of population, remain substantially the same.

The population of Moulmein town, after remaining stationary for ten years, has been gradually increasing during the last twenty years. Its population at the different censuses has been as follows:—

Year of census	1872	1881	1891	1901	1911	1921	1931
Population	46,472	53,107	55,785	58,446	57,582	61,303	65,506

It will be seen, therefore, that the increase of population in the town has not kept pace with the increase in the district as a whole. This is of course to be expected in a country where the indigenous population is predominantly agricultural and the increase in population in the towns is largely due to alien immigration. There are however signs that the indigenous population is now beginning to compete with immigrants in urban pursuits, and it may be that this tendency will be reflected in changes in the urban population. No large increase in the population of Moulmein is however likely in the near future, as the timber trade, which is one of the two mainstays of the town, is definitely decaying.

Races.

A considerable number of the indigenous races of the province are represented in the Amherst districts. The Môns are naturally the most numerous, being not only the most ancient, but having been also largely recruited from other parts of Lower Burma when British law and order converted the district into an asylum for the oppressed of their race. Môn in fact is by far the most widely spoken language in the district, though a large proportion of the people can also talk Burmese. The next most numerous indigenous race is the Karen, the Sgaw and Pwo branches of which are about equally represented.

The Burmese is the next largest element in the population, though many of the so-called Burmans are probably of Môn extraction. Other indigenous races that occur are Shans, Taungthus and Tavoyans. There is also a considerable population of Indians, especially in Moulmein and the larger villages, and a fairly considerable Chinese population. There is a considerable Anglo-Indian population in Moulmein, a number of Europeans and some Japanese and other oriental races.

The figures for the 1931 census gave the population of the district by races as follows :—

Burmese.	Other indigenous, Môn, Karen, Shan, Taungthu, etc.	Chinese.	Indians.	Others.
73,756	371,563	11,287	39,023	20,604

Unfortunately the indigenous races other than Burmese were not recorded separately in the 1931 census, but in 1921

the figures for the principal indigenous races were as follows :—

Môns 186,668; Sgaw Karens, 36,031 and Pwo Karens, 42,141. Assuming that the rate of increase of these races is the same one would except to find about 250,000 Môns, and 110,000 Karens in the district in 1931.

General Character. Môns.

The Môns are found chiefly in the sea-board townships and in Kyaikmaraw. They differ but little in appearance and character from the Burmese, and their language is perhaps the most distinctive feature about them, differing widely, as it does, both in character and idiom from the Burmese. Their skulls are perhaps a trifle less oval and their complexions rather darker than is the case with the majority of Burmans. In character they are very similar, a cheerful, generous, and conservative people, whose conservatism takes its extreme form in indolence and apathy. Their mode of life is very similar to that of the Burmese, ear-boring, *shinpyu,* marriage and funeral ceremonies being very much the same, as indeed one would expect, since the religion of the two races is the same type of Buddhism.

The *pongyi kyaung* too plays the same important part in the education of the juvenile portion of the rural community. The Môn women are, as a rule, even more prolific than the Burmese, and ten or twelve children in a family is by no means uncommon. *Pwès* are as popular with the Môn as with the Burmese, the local troupes of actors being frequently supplemented by more distinguished companies from places as distant as Mandalay. Boxing, bull-fighting and boat-racing are also popular whenever permitted. In fact most of the numerous descriptions which have been written of the Burmese character and mode of life apply equally to the Môn.

Villages.

As elsewhere in Burma, the village tract is the unit of the administration in all its branches, but the village itself differs widely from its counterpart in Upper Burma. The presence of numerous rivers and the low-lying nature of the country, largely inundated in the rainy season, do not lend themselves to the formation of compact, fenced villages such as are to be found in the dry zone.

The larger Môn villages are of two main types, the riverine village strung out along banks of rivers on the higher ridge which intervenes between the river and paddy fields, and the more commodious villages which are situated on the rising ground above the alluvial maritime plains. In the latter type of village house compounds are usually

large and contain a few fruit trees and betel-vines. These villages are usually well laid out and the standard of sanitation is higher than that of the ordinary Burmese village. The sanitation and layout of riverine villages corresponds more closely to the usual Burmese standard. The head of the village tract is, as elsewhere, the *thugyi* and the village policy of splitting up the former circles and substituting independent village headmen has been followed. This subdivision of charges has not infrequently resulted in the village tract being so small as to yield an entirely inadequate remuneration to the *thugyi*.

Houses.

The houses are almost always raised above the ground on posts; in the flooded areas this is essential to keep the houses dry. The materials vary with the prosperity of the village and the individual owner. In many villages well-built wooden houses are frequent and roofs are often of tiles or shingles. The poorer class of owner-cultivator contents himself with a roughly-built wooden or matting house with a roof made of the leaves of the *dhani* palm. While the agricultural labourer usually lives in what is little better than a hut of bamboo, *dhani* leaves, on *in* leaves. Religious and semi-religious buildings may be of brick and stucco but are more frequently of the same type as, but superior to, the better houses in the village in which they are found.

Besides his house in the village, the cultivator of fields situated at any distance has also his field hut, in which he spends the greater part of the cultivating season. This is of similar structure to the poorer houses in the village, and is usually made of *dhani* or *in* leaves, with frequently a hut of similar materials on the ground adjoining it for the accommodation of the cattle. After the harvest the cultivator returns to his village, and lives there until the next ploughing season commences.

Clothing.

The ordinary clothing of the Môn, as of the Burman, consists of a *longyi*, jacket and *gaungbaung*. In the more prosperous parts a silken *pahso* or *longyi* for ceremonial and festive occasions is also usually included in the ordinary villager's wardrobe. The *pahso* and the *gaungbaung* are of course purchased, and so also are most of the ordinary or second-best garments, especially the jacket. The clothes on the other hand, in which the cultivator does his work in the fields, are usually home-made, being woven by the women of the household. The loom underneath the house is a very common article of domestic furniture. As elsewhere in Burma, silver and gold ornaments are a common investment

for savings, thus rendering it impossible to keep a gold coinage in circulation.

Food.

The staple article of food is rice, of the variety grown by the consumer. Thus the *kaukkyi* cultivator eats *kaukkyi* and despises other kinds; the *shangale* cultivator eats *shangale* and prefers it; the hill Karens prefer hill rice and allege that *kaukkyi* gives them fever. The rice is boiled and eaten with dried fish, fried vegetables of various kinds, and other condiments. The dried fish or *ngapi* is frequently made locally, but there are no fisheries of importance in the district and much of it is imported. It has the most nauseous smell, and the unloading of a cargo of *ngapi* in Moulmein port speedily proclaims itself to the town, if the wind be blowing from the river.

Fresh fish is usually available for the trouble of catching it, and meat is usually eaten when available, despite the ordinances of the Buddhist religion. Durians, mangosteens, pineapples, mangoes, plantains, jack-fruit, marians and other fruits are common and are eaten largely. Vegetables are plentiful in the neighbourhood of Moulmein and brinjals, *pè-daung-she* (a variety of green bean), sweet potatoes and other country vegetables are usually available in the villages. Onions and chillies however, which are staple articles of diet, have usually to be imported. Sweetmeats of rice and sugar are commonly made and eaten.

On the whole therefore there is no lack of variety in the diet of the people, though the foundation is of course always rice.

Religion.

The Môn like the Burman, is ostensibly a Buddhist, and the *pongyi kyaung* and the pagoda are prominent features of the country side. There are a few Upper Burman *pongyis* in and near Moulmein, but the Môn *pongyis* who form the bulk of the local monastic class, do not acknowledge the authority of the *Thathanabaing*, and have had no recognized head since the destruction of the Môn kingdom. This want of organization does not seem to affect them adversely, and they exercise on the whole a similar influence to that exercised by the *pongyis* of Upper Burma, educating the young in the rudiments of elementary knowledge, and frequently rousing the people to carry out small public works, such as improvements of inter-village communications, which their own indolence would otherwise cause them to leave severely alone.

Apart, however, from the outward and visible signs of Buddhism the Môn is a whole-hearted *nat* worshipper, and is ever busy propitiating the local or domestic *nat* who supplies the direct personal element so necessary to a

popular religion and so conspicuously absent in Buddhism. There are *nats* of the village, *nats* of the family, *nats* of the river and tree, all of which receive attention, but their cult is not so strong as it used to be, and will no doubt in time pass away.

Karens.

The Talaing or Pwo Karens are found in the jungle villages of Kawkareik and of the plains of the Gyaing and Haungtharaw, and on both sides of the upper reaches of the Ataran, the Zami and the Winyaw. They are a peaceable people with no very marked characteristics. The American Baptist Mission can claim large numbers of converts among them, and maintains schools, chapels and lay preachers in the villages. Their villages and mode of life are very similar to those of the Môn, but as one penetrates into the Karen tracts in the interior they become more primitive. Permanent cultivation, though improving in quality, is casual in the extreme, *taungya* begins to be conspicuous, and agriculture is supplemented by timber cutting, cattle herding for hire, cooly work in the service of the Forest Department and timber firms, and similar occupations. The pagoda and the *kyaung* also cease to be a feature of the landscape, for the Karen is mainly a *nat* worshipper. The *Ayaing* or " wild " Karens are found in the Amherst Township and the valley of the Ye river, and in a good many villages in the region to the north and east of Kawkareik, especially east of the Dawnas. They are more rude and primitive than the Talaing Karens. Their religions is almost exclusively *nat* worship, and some of their customs are peculiar. Courtship, for example, is unattended by any form or ceremony. The suitor goes to his sweetheart's house and creeps into her bed. Whether or no he remains the night there depends on her acceptance or refusal of his suit. Marriage takes place when the girl becomes pregnant. They bury their dead, but a year after burial the bones are dug up, placed in a small coffin, to the accompaniment of much music and revelry, taken to the burial-ground and hung on a tree, where they are left.

Karen villages are different in type from most Môn villages. The houses though often large are usually inferior in construction and the village itself is frequently divided into several scattered parts occupying rising ground among the paddy fields. The compounds are frequently spacious and contain fruit trees and vegetables.

Burmans.

The Burmans are most numerous in Amherst and in Moulmein, but are also distributed indiscriminately throughout the

district, here a village and there a village. Of their national characteristics nothing need be said, as they resemble those of their race in other parts of the country.

Shans.

The Shans are found chiefly in and near Kawkareik and on the east of the Dawnas but there are also isolated colonies of them on the Ataran, some of whom, however, have forgotten their mother tongues, as is the case at Ngabyema, and there are even one or two Shan villages on Bilugyun.

There is a village of so-called Shan Talaings on the left bank of the Ataran, but these are probably really Môns who fled from the Burmese into Siam and have returned. They regard themselves, however, as quite separate from both the Môns and the Karens, each of which races has also a separate quarter in the same village, Kyunshan-talaing.

Except where the language survives Shans are usually almost indistinguishable from their Karen or Môn neighbours.

Taungthus.

Taungthus are numerous in Kawkareik and its neighbourhood, where they live in compact villages on rising ground. They regard themselves as superior to their Karen neighbours, with whom they share the distinction of being reputed hard drinkers. They are reported to have been in olden days a savage and cruel race, and to have opposed the introduction of Buddhism. For many years after the annexation they maintained their reputation for turbulence, and were very addicted to dacoity. The extension of cultivation, however, has tamed them, and they are now a peaceful people, less intelligent than a Burman, and more obstinate.

Tavoyans.

There is a sprinkling of Tavoyans engaged in miscellaneous occupations, mainly fishing, in Ye township. They are regarded with some suspicion as bad characters by their neighbours, but not many of them are permanent residents in the district.

Natives of India.

Immigrants from India and their descendants born in the country are very numerous. The bulk of them live in the towns. Out of a total of 39,023 persons, 21,905 are resident in Moulmein. They are also, however, to be found scattered all over the district, even in remote villages. There are old-established settlements of Mahomedan Chittagonians in the Kyaikmaraw Township. These men are mainly engaged in agriculture and milk selling, and are said to be descendants of convicts—a reminiscence of the days when Amherst was utilized as a penal settlement. There is also

a large colony of Indians at Nabu-Hnitcha in Kawkareik township, who do not always live at peace with their Karen neighbours. Natives of India met with in jungle villages are usually petty shopkeepers (and of course money-lenders), pellars, or herdsmen. The exorbitant rates of interest frequently charged by these men render them, especially in the Kya-in township, a menace both to the prosperity of the cultivator and the peace of the district. There is also a large floating population of coolies, *sampan* men, etc., which hails mainly from Chittagong. The Indian population other than the domiciled village population appears to have been slightly on the decrease during the last twenty years. In 1911 the total Indian population was 42,257, in 1921 it was 40,437 and and in 1931 39,023. The decrease is probably due to a decrease in Hindu migratory labour in Moulmein town. There is, as pointed out above, a great disparity between males and females in the Indian population, but many domiciled Indians have married women of the indigenous races.

Chinese.

The Chinese population is considerable and growing rapidly. In 1911 the number of Chinese was 5,603, in 1921 it was 8,433 and in 1931 11,287. Of these some 5,000 reside in Moulmein town and are mainly traders, and merchants, or market gardeners. As usual the pawnshop and liquor licences are mainly in their hands. There were 909 Chinese in Moulmein Township outside the town and these are mainly market gardeners and fruit growers. There were 1,742 Chinese in the Mudon Township, where trading and market gardening are their principal occupation. The rest of the Chinese population is in Kawkareik and the larger villages. They are mainly traders. They bear a good reputation among the indigenous races, except as regards opium, and give little trouble to administrative officers, except to the Excise Department. There are even several Chinese village headmen in the district, and these are outstandingly efficient headmen.

Other Races.

There is a large Anglo-Indian and Anglo-Burman population in Moulmein. In 1931 there were 1,739 persons (836 males and 903 females), returned as Europeans and Anglo-Indians of whom the vast majority were Anglo-Indians. The Anglo-Indians are mainly engaged in clerical work, business or the professions. The Europeans and Americans mostly live in Moulmein town and Amherst and are engaged in administrative work, business, planting, and missionary work. There are a few Japanese, mainly dentists or photographers, and isolated members of other Asiatic races.

CHAPTER IV.

AGRICULTURE AND IRRIGATION.

Agriculture—General Features; Crops—Rice; *Lè;* Mode of Cultivation; Varieties of Paddy; Marketing of the Crop; Irrigated Paddy—*Pata, Patè* and *Mayin; Taungya;* Gardens; Durians; Oranges; Mangosteens; Betelnut; *Dhani;* Vegetables; Sugarcane; Cotton; Rubber; Pests; Extension of Cultivation; Land tenures; Tenants; Indebtedness; Co-operative Societies; Agricultural Stock; Cattle Disease; Irrigation; Protection and Drainage Works.

Agriculture—General Feature.

The area of the district under cultivation in 1826 was extremely small for reasons already referred to in Chapter II. With the establishment of law and order, large areas became available for cultivation by an ever-increasing population. Progress has been so rapid and continuous of late years that now practically all land suitable for the cultivation of rice, the staple crop of the country, may be said to have been brought under tillage. Large areas of waste land however remain, which, as communications improve and scientific agricultural knowledge spreads among the masses, may be expected to be gradually opened out to the cultivation of other crops. Fruit gardens are already common, though the standard of husbandry is usually very low in gardens worked by indigenous cultivators. There was, until it was checked by the slump in prices, a great expansion in the cultivation of rubber. The district contains wide stretches of lateritic slopes eminently suitable for this crop, which is moreover easy to grow, and a substantial recovery in rubber prices would probably lead to a further expansion. An attempt to cultivate cotton some twenty years ago ended in failure. The climate must be against this crop, but a greater handicap to its cultivation is undoubtedly the extreme casualness of the Karen cultivator. Cotton being a crop which on account of its extreme liability to attacks by various pests requires careful cultivation. A new staple crop for dry cultivation is urgently required if further development of the district is to occur, and it is possible that this may be found in the oil-nut palm with which successful experiments have been carried out by the Agricultural Department.

Although in the early years of British Administration agriculture did not flourish as might have been desired, by 1880-81, 241 square miles had been brought under tillage. This had risen to 286 square miles in 1890-1. Since then a very marked increase has taken place. The total

area under cultivation in 1910-11 was 824 square miles and in 1932-3 it had risen to 1,039 square miles, distributed by Townships as follows:—Moulmein, 28 square miles; Chaungzon, 136 square miles; Kyaikmaraw, 175 square miles; Mudon, 164 square miles; Amherst, 90 square miles; Ye, 143 square miles; Kawkareik, 201 square miles, and Kya-in, 102 square miles.

Crops—Rice.

Rice is by far the most important crop cultivated in the district, about nine-tenths of the occupied area being devoted to it. It is grown by three main methods, *viz.* (1) the ordinary permanent paddy cultivation of the plains (*lè*), (2) the utilizing of submerged lands as they dry up for the production of hot weather rice (*mayin*), the supply of water being controlled by irrigation works of an elementary kind, (3) the practice of annual *taungya* cutting, which is most extensive in the hills, but is also found side by side with permanent cultivation in the higher and less fertile parts of the plains.

Lè.

Lè cultivation is much the most important of these methods, and is the source of supply of the Moulmein rice market. This type of cultivation predominates in all townships, the largest areas being found in Bilugyun, Mudon, and the valleys of the Gyaing and Ataran. The district contains wide fertile areas suitable for this form of cultivation, which in essence consists of the growing of rice in six to nine inches of standing water, the water being kept on the fields by low embankments. Owing to the climatic conditions most of the land under *lè* is unsuitable for any other form of cultivation and is worked with rice year after year. This must of course have an exhausting effect on the soil, but fortunately the fertility of the better land is renewed annually by deposits of silt, and a fairly small amount of manure serves to maintain the productivity of the poorer land, so that there are no signs of any serious deterioration in the productivity of the soil, though it was not of course to be expected that the high average outturn of 50 and 60 nine-gallon baskets obtained according to Mr. Maingy in 1833 would be maintained. The soil was then almost virgin and it must also be remembered that it is likely that the best land was brought under cultivation first. Even now there are many fields in Chaungzon which produce such crops annually.

Mode of Cultivation.

Ploughing commences soon after the first heavy rain. The Burmese plough is the ordinary implement of tillage on the better

land, but the iron plough is not unknown. The Burmese toothed harrow takes the place of the true plough where the fertile surface soil is shallow. On some very shallow soils tillage consists simply of treading the wet land with herds of buffaloes. After ploughing harrowing with a roller harrow (*setton*) is carried out to break up the clods and remove the grass. Both broadcast sowing and transplanting are practised. The degree to which each method is used depends primarily on local conditions. It is admitted that transplanting gives a better outturn, but its cost is much higher than broadcasting and many cultivators aver that this eats up all the extra profit. As a general rule it may be said that broadcast sowing is customary wherever a good return can be obtained and that transplanting is only resorted to where broadcast sowing will not give a good result. Transplanting is essential in the late-planted riverine areas and on the poorer soils and is largely resorted to for "patching" when the sown plants are damaged by floods.

The bulk of the *lè* cultivation may be said to depend rather upon inundation than upon direct rainfall, the latter being chiefly important as affecting the extent and duration of the inundation. The whole system is one of following the water as it falls. Too heavy early rains mean delay in the preparation of the soil and the sowing of the seed. Excessive floods after sowing involve the drowning of the young plants. Failure of the late rains causes a premature retreat of the flood from the higher lands and consequent disaster to the crops thereon. Thus normally the lower the land, the more fertile it is. It retains the water longer and receives more silt. This is of course subject to the qualification that the land is not too deeply inundated.

In many parts of the valleys of the Gyaing and Ataran cultivators have abandoned the unequal contest with the floods and defer planting until the main flood finally falls in late August or September. This saves the crop from the danger of being washed out, but renders it peculiarly dependent on the October rains. A failure of these means the ruin of the late-planted crop. This variety of cultivation is known as *ye-laik* (*i.e.*, "following the water") from the fact that planting begins on the higher lands and proceeds down the slope as the water subsides. The early varieties of paddy commence to mature in October. The main reaping season is in November and December. Before reaping which is done by hand with the sickle it is customary to roll a large bamboo across the field so that the ears all lie in one direction. Threshing is normally performed on a threshing floor of beaten earth by

the treading of cattle which are frequently muzzled, but the use of the flail is not unknown. Winnowing is done with the aid of the wind and by hand fans.

Varieties of Paddy.

The Moulmein millers divide the varieties of paddy which usually reach their mills into three types, *kaukkyi*, *shangale* and *yahaing*. The two latter classes correspond roughly with the two ordinary *ngasein* and *emata* types of Burma paddies. The *kaukkyi* consists largely of the *byat* (*i-brat*) types but includes some *midon* types as well. The principal varieties of *kaukkyi* known to the cultivators are the *byats*, *sein-she-gyi* and *sein-she-gale*.

Kaukkyi varieties are, as their name implies, long-lived and can only be grown on land where early planting is possible and the water supply is good. The price of *kaukkyi* is usually considerably higher than the price of the other types, but in spite of this it is giving way to *shangale* and *yahaing* types in most of the district, except in Mudon. The principal variety of *shangale* is *ikarè*. *Ikarè* has a larger outturn than *kaukkyi* and a shorter life period and the grain is quite as heavy. It is a less delicate crop than *kaukkyi* and has greatly advanced in popularity in recent years. The principal varieties of *yahaing*, other than *yahaing* proper, are *ikaraing* or *ikarin* and *ipataing*. These are long-grained paddies and the varieties grown have usually a shorter life period than *ikarè*. These long-grained varieties are popular with Indian millers. In Bilugyun they are known as *babu-kyaik* (*i.e.*, liked by Indians) and sell at a premium as compared with *ikarè*. Good *yahaing* also comes from the neighbourhood of Migalon in Kawkareik, but as a rule *yahaing* varieties are inferior to either *kaukkyi* or *shangale*. This is largely because, the life period of the paddy being short, it is widely grown in the precarious riverine areas, where the conditions of cultivation often cause the grain to be very light. Two varieties of paddy which are fairly common and do not fall easily into the above classification are *kalagale* and *tadaungbo*. *Kalagale* is a small-grained paddy of recent introduction. The plant is small in straw but prolific in grain and has a very short life period. It is eminently suitable for cultivation on upland fields where the water supply is scanty and mills quite well. *Tadaungbo* is a deep water or " floating " paddy which will grow where no other crop is possible. The grain is red and coarse and breaks up badly during milling. This variety of paddy is peculiar in that the land is ploughed dry and the seed broadcasted before the rains begin. It is said to be very exhausting to the soil and may be regarded as the forlorn hope of the cultivator of badly flooded land. The

glutinous varieties of paddy, *e.g.*, *kauk-hnyin* and *kauk-hmwe*, are also grown on a small scale.

Marketing of the crop.

In all townships except parts of Kya-in the bulk of the paddy grown is intended for export. In years when the market is good the crop is usually sold on the threshing floor or at a nearby boat-landing. In years when the price is poor much of it is held for a rise in price and stored in the villages from whence it is sold. The buyers are usually brokers employed either directly or indirectly as buying agents by the millers or independent traders. These brokers and traders either sell to large brokers in Moulmein or direct to the millers. Some mills now employ salaried agents instead of head brokers to buy paddy. The rent collectors of the larger landlords also buy paddy for their employers. The buyer is usually responsible for transporting the paddy from the place of purchase to the mill. Practically all paddy is brought to Moulmein by boat as the network of rivers and tidal creeks and the sea make water transport simple and convenient. The Kawkareik plain and the villages to the east of the Dawnas are the only exporting areas in the district where paddy has to be carried by cart for more than a few miles. Transport of paddy to Moulmein by rail is almost unknown as this type of transport is expensive and usually most inconvenient.

Irrigated paddy—*Pata*, *patè* and *mayin*.

Irrigated main crop paddy may be said scarcely to exist except in the out-of-the-way Myawaddy area. Irrigation is used to a minor extent to supplement the rainfall and inundation in Kawkareik and Kya-in townships but is of no importance. Practically all the irrigated rice matures between January and early May. At least three types of this dry weather cultivation are distinguished but as the distinction is almost entirely one of season and the season of planting depends solely on the conditions of water supply, it is frequently difficult to say to which type of of cultivation a particular field belongs. All dry weather rice cultivation is carried out on land which by reason of the excessive flooding is unculturable during the rains. Such land lies usually in the long depression which run parallel with the rivers a mile or so from the banks. The dividing line between *ye-laik* cultivation and dry weather cultivation is the line below which planting must be so late that it is impossible for the crop to mature without irrigation. The earliest of the dry weather crops is called *pata*. Planting commences on the lands immediately adjoining the lowest *ye-laik* as soon as the water falls. The middle crop is *patè* and is similar to *pata* but lower down the slopes. The

third crop is *mayin* which is true hot weather rice, maturing frequently only just before the rains. Methods of cultivation are roughly the same as for the main crop except that the tillage is less elaborate and irrigation is usually essential. Irrigation in favoured localities is carried out by flow by means of small irrigation channels taking off from a point higher up one of the streams which usually run into the depressions. But in many cases irrigation has to be done by lift. The common means of lifting water is the very primitive and laborious *kanwè* or scoop, but the writer has seen one water-wheel of the type used in the Shan States and has heard of endless-chain pumps actuated by an oil engine being used. The method of irrigation makes a great difference to the cost of cultivation. *Mayin* irrigated by flow costs no more to cultivate than the ordinary main crop, but the costs of cultivation of *mayin* irrigated by lift are nearly double the costs of the main crop. The best *mayin* is that irrigated by flow from streams and the best *pata* is that irrigated by flow from the hot springs at Yebu. The cultivation of dry weather rice has expanded greatly in the last 20 years. The area under " spring " rice in 1912-13 was 6,026 acres, while in 1931-32 it was 16,630. The cultivation is laborious and holdings are usually very small. Practically no dry weather rice is exported to Moulmein.

Taungya.

Taungya is one of the most primitive forms of rice cultivation and is the only form of rice cultivation in which the crop is grown dry. In essence it consists in cutting and burning the jungle on a patch of sloping ground and planting the seed in the ashes. The same piece of land can usually only be used once or at the most twice and then has to be fallowed to allow the jungle to grow up again. This takes from five to ten years. It is therefore obvious that this form of cultivation can only be practised where the population is small and the area of suitable jungle large. The unchecked practice of *taungya* cultivation tends to be very destructive to forest growth. This form of cultivation is commonest in Kawkareik, Kya-in and Ye but isolated patches of *taungya* are found in most places where there are hills. It also occurs to some extent on the higher lands in the plains.

Gardens.

The fruit crop of the district is of considerable importance In 1931-32 the area under gardens, which mainly grow fruit trees or betel-vine was about 47,000 acres. A considerable variety of fruits are grown including durians, mangosteens, cocoanut, betel-nut, jack-fruit, plantains.

mangoes, Penang jack-fruit, pommeloes, *kyet-mauk-thi* (a kind of *lichi*), limes, sweet limes, guavas and marians. There is a considerable area under betel-vine and a fairly large area under vegetables.

Durians.

The district is famous for its durians which are grown mainly near Moulmein, in Bilugyun, in Amherst township, near Ye and near Laungkaing in Kya-in but occur elsewhere also.

The trees begin to bear in eight or ten years and go on fruiting for about thirty years. They are usually watered during the hot season, and are manured, when planted in gardens, but those on hill-sides are left to fend for themselves. The fruit is much esteemed and has a very original flavour, but the average European finds its enjoyment seriously marred by its smell, which is particularly nauseous. The unsophisticated traveller visiting Moulmein in the durian season would at once on the evidence of his nose conclude that the drains of the town were sadly neglected. A durian tree will yield on the average about 40 fruits in a season.

Oranges.

The orange crop used to be an important one in the district especially near Kya-in-Seikkyi, but rather over twenty years ago the trees, for some reason which has never been clearly understood, began to die and there is now scarcely a bearing orange tree in the district.

Mangosteens.

Mangosteens are cultivated near Moulmein and in Bilugyun. They are believed to have been introduced from Malaya. They are grown in a similar manner to the durian, and frequently side by side with it. The tree commences to bear fruit ten years after being planted, and continues to do so for fifty or sixty years. It yields about 400 fruits in a season.

Betel-nut.

The betel-nut palm is widely cultivated, being most common in the neighbourhood of Moulmein, the Gyaing and Ataran, and Ye. The tree thrives best near the sea coast. It ordinarily requires watering for three or four years after planting, but later requires no attention. Each tree bears about 160 fruits.

Dhani.

The *dhani* palm is common on the banks of creeks in Bilugyun, Amherst and Ye. The area under it in 1931-32 was 7,081 acres. The manufacture of thatch from the leaves of this palm is a comparatively large industry in the Ye township. Sugar and toddy are made from the juice of the tree, but only on a small scale.

Vegetables.

The area under vegetables is not very large and is unimportant except near Moulmein where fairly extensive market gardens supply the town with most vegetables. The country vegetables grown include chillies, maize, Burmese radishes, sweet potatoes, yams, *pè-di*, long green beans called *pè-daung-she*, cucumbers, knol-kohl, pumpkins, gourds, brinjals, *kyet-hin-ga-thi*, and tomatoes, while English vegetables which flourish near Moulmein include cabbages and cauliflowers, French beans, green peas and various sorts of spinach.

Sugar-cane.

Sugar-cane is cultivated on the islands in the Gyaing and to a small extent elsewhere, but the crop is not important and appears to be diminishing in importance. In 1931-32 only 347 acres were planted as against 1,368 acres in 1920-21. Mention may perhaps be made of *kaing* sugarcane a variety with small canes cultivated in much the same way as *taungya* rice in Amherst and parts of Kya-in. This cane is milled for sugar, but most of the cane on the islands in the Gyaing is sold unmilled as a sweetmeat.

In 1842 an attempt was made by a Mr. O'Riley to develop a trade in sugar, and he established a factory at Amherst and succeeded in persuading Government to prohibit the import of foreign sugar. The merchants of Moulmein protested and the embargo was removed in 1844, only to be reimposed two years later. It was finally abolished in 1848, when Mr. O'Riley's factory had been closed down. At the present time the cultivation of the cane and extraction of sugar is purely a cottage industry.

Cotton.

Experimental cultivation of cotton followed very closely upon the annexation, for in 1834 Mr. Blundell introduced Pernambuco cotton. The cultivators, however, did not take to it, and nothing was achieved beyond demonstrating that Pernambuco cotton could be grown in the district.

In 1907 a lease for the cultivation was granted and in 1911-12 there were thirteen such leases, including one to the Karen Planting and Trading Company of nearly 2,000 acres and one to Messrs Garrood and Platt of between three and four hundred acres, both in the Kya-in Township. The varieties chiefly grown were Pernambuco and Caravonica but Sea Island and other types were also tried. The project was a failure. The area under cotton rapidly diminished and is given at present as seven acres.

Rubber.

Large areas in the district are suitable for the cultivation of rubber and there has been a great expansion in rubber cultivation

during recent years. In 1912-13 there were 1,455 acres under rubber: in 1917-18 the area was 4,772 acres; in 1922-23 it was 7,655 acres; in 1927-28 it was 13,726 acres; and in 1931-32 it was 20,651 acres. At present the slump in rubber prices has seriously damaged the prospects of the industry; tapping is restricted and many immature plantations are neglected and overgrown with weeds. But rubber is a commodity the use of which is most unlikely not to expand almost indefinitely and there is little doubt that a revival will occur within the next few years. The two most important plantations are the Moulmein Rubber Company, Limited, and the New Amherst Rubber Company, Limited, which are under European management, but there is a large number of small estates in the hands of Indians and indigenous cultivators. Unfortunately the quality of the rubber from the smaller estates is frequently poor on account of the casual method of cultivation and manufacture.

Pests.

The chief insect pests which attack the rice crop are the *gaung-bo, u-shauk-po, ywetsapo,* and *ahnan-pyat-po.* The first mentioned attacks the roots. The *u-shauk-po* enters the stalks and causes them to decay internally so that the ear dries up prematurely and fails to fruit. The *ywetsapo* as its name implies attacks the leaves. The *ahnan-pyat-po* bites off the ears when the grain is almost ripe, and frequently causes so much grain to fall that the reaped field looks almost as though it had been sown broadcast. These pests are present to some extent every year but are always worse in a year of badly distributed rainfall. A bad crop is almost always made worse by the attacks of insects, while a good crop usually escapes very lightly. A failure of the late rains in the riverine areas is almost always accompanied by serious damage from insect pests. Besides the ordinary insect pests and the periodical damage due to inundation by salt water, which, unless diluted by rain, is fatal to paddy plants, the maritime areas also suffer from a number of pests of their own. Small crabs do great damage to the young plants during one of the periodical migrations of these creatures, so that planting is sometimes delayed till the crabs have visited the fields. There are several varieties of small fish which also eat the young plants. A burrowing animal said to resemble a prawn or crayfish does considerable damage to *kazins* and also to the crop by excavating and piling up the excavated earth in hollow pillars over a foot high. A curious creature known as the *thinbaw-bauk* damages the *kazins* by burrowing. Birds and rats and mice and other small

field animals exact their toll all over the district, and the more outlying fields the usual depredations of jungle animals, monkeys, wild pig, deer, etc., occur. In some places many devices are used to scare these away, but not to the extent they are employed in Upper Burma. A pest which is dangerous not to the crop but to the cultivator is the Russell's viper which causes a number of deaths each year. In some kwins in Mudon and Bilugyun, the snake is so common that higher wages are paid to labourers on account of the risk of snake-bite.

Extension of Cultivation.

As noted above the extension of cultivation in the early years of the British occupation was comparatively slow. Steady extension took place however throughout the 19th century and at the beginning of the present century a great boom in land took place in the district. This had its origin in the bumper crop of 1903 and the rise in the price of paddy. The fever of speculation seized all classes, and many non-agriculturists succeeded in obtaining grants, despite the appointment of special *Myoôks* to deal with applications. The number of applications which had to be dealt with may be inferred from the following figures of grants for paddy cultivation issued in the district between 1903 and 1908. In the latter year further grants were suspended by the orders of the Financial Commissioner.

Year.	1902-03.	1903-04.	1904-05.	1905-06.	1906-07.	1907-08.
Total acreage of grants issued.	6,540	29,164	23,378	12,968	5,646	2,882

Much of the land taken up was unculturable, and was applied for only in the hope that improvements by neighbouring cultivators would eventually make it worth something. Chetties were badly hit by advancing money on mortgages on such land without sufficient inquiry as to their real worth. In one *kwin* in Nyaungbinzeik circle alone they are said to have lost Rs. 30,000. The introduction of *tadaungbo* led to the cultivation of a large area part of which was subsequently abandoned owing to the failure of this crop to fulfil expectations. Extension of supplementary survey in 1907 and 1909 brought large areas under settlement, and swelled the figures of occupied area out of all proportion to the actual extension of cultivation. One hundred and eleven *kwins* in Kawkareik and one hundred

and sixty four in Kyaikmaraw were surveyed, representing 37,270 and 40,419 acres respectively, much of which had been a considerable time under cultivation. Immigration from Tavoy and Bilugyun into Ye and Amherst townships respectively led to further revision of survey and correction of area statements.

Much of the increase in paddy cultivation about the time of Mr. Jamieson's settlement was therefore statistical rather than actual and the settlement was followed by an actual fall in the cultivated area. The fall was however only temporary. By 1915-16 all the loss had been recovered and though there were further temporary decreases in the cultivated area there has been steady annual increase in the area under paddy cultivation up to the present year (1932-33). The total area cultivated with all crops in the year 1912-13 was 447,317 acres and in 1932-33 it was 574,317, an increase of 127,000 acres. It should be observed however that part of the increase in the years 1930 to 1933 was due to revision of the survey preparatory to re-settlement. The survey had been grossly neglected for some years and large unassessed extensions were discovered on resurvey. Actually it is quite likely that there has been a slight decrease in cultivated area owing to the slump in the world prices of cereals, but the decrease has not been really serious, and is probably more in the nature of more extensive fallowing of poor land than actual abandonment. The most noteworthy features of the last twenty years have perhaps been the great extensions in the cultivation of hot weather rice and rubber. The area under hot weather rice (*mayin* and *pata*) has more than doubled since the war; the area in 1918-19 was 6 862 acres and that in 1932-33 was 17,660. The area under rubber has increased steadily since 1912-13. In that year the area was 1,455 acres while the area in 1932-33 was 19,684 acres, though some of this will probably be abandoned unless the price of rubber improves. As practically the whole of the easily accessible area suitable for the cultivation of rice is already under cultivation there is unlikely to be any extensive increase in the area under this crop in the future, unless a large increase in population in the Kya-in and Kawkareik Townships causes an extension of cultivation there. Large areas suitable for rubber and fruit gardens exist, but the extension of the former of these crops is dependent on an improvement in the world price and that of the latter principally on an expansion of population.

Land Tenures.

The land is for the most part in the hands of peasant proprietors who work holdings of from ten to thirty acres. Larger

landholders are however fairly numerous particularly in the neighbourhood of Moulmein and in Ye. In the area under supplementary survey in 1932-33 there were 46 holdings over 100 acres, 21 over 500 acres and 7 over 1,000 acres. Except in the case of these large estates, the better the land is, the smaller the holding is. There is a tendency of holdings to decrease in size especially when the land is good, owing to the practice of subdividing a holding among the co-heirs in Buddhist law. The area in the hands of non-agriculturalists is increasing but not at an alarming rate.

The types of tenure are those recognised by the Lower Burma Land and Revenue Act, *i.e.*, land held under landholder's right, land held with the permission explicit or implicit of the revenue authorities and land held under lease or grant for a period of years. There are also some old freehold grants which are held free of all revenue in the immediate neighbourhood of Moulmein town, but this land is almost entirely non-agricultural.

Tenants.

The tenants as one would expect, in a land of peasant proprietors, are drawn from the same class as the bulk of the landlords. They are frequently persons who have lost their land through misfortune or the children of land-owning cultivators. Rates are competitive in Chaungzon, Moulmein and Mudon and the more developed parts of the other townships, but are merely customary in the more out-of-the-way areas. The vast majority of the tenants pay a fixed rent in produce after harvest. Money rents are uncommon but do occur in the better areas. Share produce tenancies and partnerships are also found but not in large numbers. The land revenue is usually but not invariably paid by the landlord. The fixed produce rent is usually based on a proportion of from one-third to two-fifths of the gross produce of the land. In some cases as much as half the gross produce is demanded as rent. The proportion twenty years ago was from one quarter to one third, so that there has been a real increase in rents independently of the price of the produce which of course varies. It seems likely at present that the rents are rather higher than as strictly justified economically, since the rents were probably raised during the post-war boom in the rice trade, and have not yet fallen. Landlords, the value of whose rents have fallen on account of the slump in the paddy market, are naturally unwilling to power the amount of produce taken unless they are compelled to do so. This will however probably adjust itself naturally in the next few years. Landlords are usually quite willing to grant large

remissions of rent on account of crop failures even, when necessary, to the extent of allowing tenants to pay no rent except the amount of the land revenue in years of almost complete failure. The proportion of the area held by tenants to the whole occupied area for the area under supplementary survey is 24 per cent in the years of the latest settlement (1930-33).

Indebtedness.

Of the cultivators examined during the settlement of 1930-33, 79 per cent were found to be in debt. The figure for the Chaungzon, Moulmein, Mudon and Amherst townships settled in 1906-07 was 29.4 per cent and in the Ye, Kawkareik, Kya-in, Kyaikmaraw and Amherst Townships settled 1911-12 was 17.9 per cent. The large degree of indebtedness should not be regarded as necessarily indicating poverty. It usually merely means that the credit of the cultivator is good, and the level of indebtedness is usually higher in the richer parts of a district than in the poorer. The fact is that the cultivation of small holdings can only be satisfactorily carried out on credit, and it is the habit of the indigenous cultivator to borrow almost to the limit of his credit. The percentage of the debt incurred for productive purposes as ascertained at the last settlement were purchase of land 31 per cent, purchase of cattle 4 per cent, improvements to land 5 per cent. These percentages must not be too implicitly relied upon, as the cultivator borrowing for the purchase of land, seed or cattle frequently borrows a sum in excess of his requirements so as to allow a substantial margin for a *pwè* or other unproductive expenditure. Nevertheless, with all due allowance for the human frailties of the indigenous cultivator, the statistics represent a satisfactory state of affairs, and the district may be pronounced free from serious debt. Interest varies from 24 to 36 per cent per annum, the former being only obtainable on large sums covered by adequate security. There is a form of petty, temporary debt which is very prevalent in the district after a year of indifferent crops, especially in the riverine areas. A bag of rice, which represents the result of milling about eight baskets of paddy, is borrowed from the village shopkeeper, usually an Indian, to be repaid by twenty-five baskets of paddy at next harvest. These loans are as a rule for about six months so that the interest works out at about 212 per cent for the six months or over 400 per cent per annum. This type of credit is extended to other household necessities; for example a packet of matches the value of which is 2 annas 6 pies is bought during the rains for one basket of paddy payable at harvest. At the present price the retail value

of one basket of paddy is twelve annas. This represents interest at the rate 380 per cent for six months. No doubt these scandalous rates of interest could never be enforced in the courts but the cases never get there. The cultivator is helpless, because he fears that if he does not pay the shop-keeper he will be unable to obtain rice for his food in the next bad year. As two bad years rarely follow one another, less distress is caused than one would expect from these high rates of interest.

Loans under the Agriculturist's Loans Act are popular, but in normal years the amount actually required is not large, which speaks well for the normal prosperity of the district. The amounts of new loans issued in the last five years have been as follows:—1928-29 Rs. 4,390; 1929-30 Rs. 9,500; 1930-31 Rs. 4,455; 1931-32 Rs. 40,250; 1932-33 Rs. 34,697. The great increase in 1931-32 was due to the very bad paddy crop in that year combined with the unprecedented slump in prices.

Loans under the Land Improvement Loans Act are not very common. The amounts lent during the past two years are as follows:—1931-32 Rs. 2,000; 1932-33 Rs. 600. Loans under this Act would be eminently suitable for reclaiming land from the sea in the maritime areas and it seems a pity that more use is not made of it. The reason is probably that cultivators are not generally aware of the provisions of the Act, while the Township Officers have no incentive to remedy the deficiencies in their knowledge.

Co-operative Societies.

The Co-operative movement was only started in the district in 1918 and for a time progressed favourably but during recent years the number of societies has fallen from 79 to 45. In the present condition of agricultural finance it is difficult to make any attempt to increase the number of agricultural credit societies, but the Co-operative Department hopes shortly to institute reconstructive measures whereby it is hoped that a large number of the existing societies will be saved from liquidation and dissolution. If this endeavour is successful it will be possible to recommence propaganda. The Moulmein District Central Co-operative Bank, Limited, is well managed and conducts its affairs with commendable caution. The conservative policy of the bank has stood it in good stead at a time when many other such banks have been inclined to embark on rash policies. On June 30th 1932 the share capital of the bank was Rs. 78,800 and it held reserves and other special funds amounting to Rs. 47,336-8-0. There were fixed deposits amounting to Rs. 89,836-6-0 and saving bank deposits amounting to

Rs. 62,346-11-5. The total loans issued by the bank to primary credit societies amounted to Rs. 1,47,649-11-0 while the bank had Rs. 1,38,455-9-0 invested in Joint Stock and other Co-operative Banks. In the year 1932-33 the percentage of repayments made by societies to the bank was forty-eight. This is a very creditable effort in view of the agricultural conditions during the year. The bank, having considerable reserves and investments with but small scope for their utilization as loans to societies has at present considerable surplus money which it is unable to use as profitably as it could if the co-operative movement were more flourishing. It is possible that this situation may be improved by a federation of Co-operative banks which is at present projected.

The actual number of societies of all classes and the number of members during the years 1927-28 to 1931-32 is given in the table below:—

Type of Society.	1927-28.		1928-29.		1929-30.		1930-31.		1931-32.	
	Number of Societies.	Number of Members	Number of Societies.	Number of Members.	Number of Societies.	Number of Members.	Number of Societies.	Number of Members.	Number of Societies.	Number of Members.
Central Bank ...	1	183	1	170	1	159	1	167	1	145
Agricultural Credit	79	2,399	55	1,928	52	1,577	48	1,375	45	1,588
Non-Agricultural Credit.	1	12	...	...	...	...	...	...	...	...
Unions (Agricultural)	16	67	14	48	7	52	7	39	7	59
Union Group Boards	1	16	1	16	...	...	...	...	...	...

During the year 1931-32 the main heads of working capital were as follows:—

	Rs.
Loans and Deposits by non-members ...	480
Deposits by members	1,570
Loans by other societies and the Central Bank.	1,35,192
Share Capital	97,021
Excess of Assets over liabilities	1,58,942
Total ...	3,93,205

The total expenditure was Rs. 23,570.

Agricultural Stock.

The number of agricultural stock in the district in 1931 was returned as follows :—

Bovine Cattle.				Buffaloes.						
Bulls.	Bullocks.	Cows.	Young Stock.	Bulls and Bullocks.	Cows.	Young Stock.	Horses and Ponies.	Sheep.	Goats.	Pigs.
20,996	44,439	58,608	32,524	14,887	20,051	10,927	1,903	30	7,527	10,699

The number of agriculturists (earners and working dependents) in the same year was 132,887. In 1855-56 there were only 5,297 bovine cattle and 36,501 buffaloes in the district as then constituted. In 1910-11 the numbers were 99,336 bovine cattle and 54,341 buffaloes. As will be seen from the table above the numbers in 1930-31 were 156,567 bovine cattle and 45,865 buffaloes.

In his settlement report of 1868 Captain Horace Browne commented on the fact that cattle were gradually being substituted for buffaloes, as has every subsequent Settlement Officer. The reason for it undoubtedly is that the buffalo is more prone to disease than the bullock, far more difficult to cure of even the smallest ailment, not adapted for other than agricultural work and timber hauling, cannot work as long hours as the bullock, and does not last as long. Both bovine cattle and buffaloes are bred in the district, but large numbers are also imported, the former from Siam and the Shan country, the latter from Tavoy. In most of the districts grazing facilities are sufficient. There is plenty of grass during the rains and after harvest the cattle are turned on to the fields. In Mudon, however, many cultivators send their cattle over the hills to the Ataran valley during the dry weather to be grazed at a fixed charge per head. This is perhaps quite as much due to the difficulty of obtaining water on the Mudon plain as to any shortage of fodder. Some cattle food, sesamum oil-cake, etc., is purchased during the rains. Wide areas have been reserved as grazing grounds but the choice of these has not always been happy. Land has frequently been chosen

mainly because it was unsuitable for cultivation and this has frequently meant that it was unsuitable for grazing purposes also. There are several grazing grounds which are deeply flooded during the rains and arid wastes of dry mud in the dry weather. The horses and ponies are mainly small Shan animals and gharry ponies. The Shan pony is strong but very small and can carry a light weight for many miles at a slow pace. The gharry and *tonga* ponies are frequently in very poor condition and the tarred roads of Moulmein town are a great trial to them. A more rigorous administration of the Prevention of Cruelty to Animals Act is desirable as the ponies are frequently overloaded and driven with sore backs and open wounds.

Cattle Disease.

The principal diseases among agricultural cattle are rinderpest, anthrax, hæmorrhagic septicaemia and foot and mouth disease. Cattle disease was formerly endemic in the district and caused great loss annually.

It is on record that in 1836 an epidemic destroyed 12,000 buffaloes in Tenasserim, a large proportion of which no doubt belonged to Amherst district. In 1876 between January 1st and August 30th no fewer than 12,562 head, comprising 11,290 buffaloes and 1,272 cattle, died of disease within the district as then constituted. There has been no recurrence of such an outbreak as that of 1876, and the rules for the report of outbreak of disease and for the segregation of diseased stock have undoubtedly done much to improve matters. The evil has, however, been by no means eradicated. In 1908 and 1909 7,400 head died in Ye township, and in 1910 some 2,500 head in the Tagundaing circle of Kya-in township. In 1913-14 3,915 cattle died of rinderpest, in 1922-23 5,098, in 1923-24 2,309 and in 1928-29 2,861. The average number of deaths during the years 1913-14 to 1931-32 was 1,158 from rinderpest, 50 from foot and mouth disease and 132 from black quarter, anthrax and hæmorrhagic septicaemia. Much of the disease is probably imported from Siam by the droves of cattle which come down from there defiling grazing grounds and watering places *en-route*, just when the local cattle are at their weakest after the labours and exposure of the wet season.

The more developed townships are now fairly free from serious epidemics, and most of the deaths occur in Kawkareik and Kya-in.

Irrigation.

The general system of cultivation of the staple crop of the district has already been described as a following of the

flood water as it falls. It will therefore be readily understood that in view of the inundation of the country and the volume of the rainfall no irrigation works in the larger sense of the term are required for the cultivation of nine-tenths of the agricultural produce of the district. Such irrigation works as exist are all of a private and petty nature. In Kawkareik and Kya-in there are some small irrigation channels which are used to supplement the natural rainfall in jungle clearings, and the neighbourhood of Myawaddy there is a more highly developed irrigation system. *Mayin* and *pata* cultivation commonly require some sort of irrigation. Whenever it is possible to dam a stream higher up irrigation of these crops is carried out by flow but frequently this is impossible and water is lifted on to the fields by a primitive scoop (*kanwè*). There are one or two home-made water wheels and one or two pumps actuated by an oil engine. Fruit and vegetable gardens are irrigated from wells by the method of the bucket and weighted lever (*maunglet*). The hot springs at Yebu are used to irrigate the surrounding gardens and paddy fields and as the springs are on rising ground irrigation is by flow.

Protection and Drainage Works.

Far the more important works are those designed to keep out, or carry off, the surplus water, *i.e.*, defence and drainage works. With many cultivators the expense of maintaining a low embankment round the parts of their holding most exposed to the flood is a normal item in the cost of cultivation. But for the apathy and indolence characteristic of the indigenous races there would be far more of these *tamans*, as they are called. In parts of Ye township a cultivator erecting a *taman* which benefits not only his own holding but possibly hundreds of acres belonging to his neighbours expects and receives no aid of any kind from them in maintaining it. If he does not keep it up, none of them will attempt to do so, and they will see their lands become almost unculturable rather than assist. Fortunately this attitude is not universal. A useful embankment running along the left bank of the Haungtharaw for eight miles between Migalon circle and Kanni villages and protecting the whole Migalon circle from flood, was constructed by cultivators with aid from the District Fund. Unfortunately it is now in a sad state of disrepair.

In numerous other cases the cultivator finds it necessary to maintain drainage channels to carry off surplus water. The principal such channels are the Mudon canal, the Dammathat canal, the Lawtakawkyun canal, the Kyonkamè canal, and the Lettetkan drainage cut. The Mudon canal was constructed by Government and its length is 421 chains. It was intended to drain the flooded area near Mudon. It

was to some extent successful but requires dredging. The Dhammathat canal was constructed by Government and joins the Kyoneik *chaung* and the Seikkyi *chaung* near Dhammathat in Kyaikmaraw Township. Its object was to carry off surplus water from the flooded hinterland of the Gyaing. It is a useful canal though inadequate for the work it is supposed to do. It is theoretically maintained by the District Council but the maintenance leaves a good deal to be desired. The Lawtakawkyun canal is in the Mudon Township. It is 370 chains long and was constructed by villagers to carry off flood water from seven *kwins*. The Kyonkame canal was constructed by villagers and is 206 chains long. It benefits eight *kwins* in the Mudon Township. The Lettetkon drainage cut was constructed by villagers and is 214 chains long. It was intended to relieve flooding by improving the flow of water into the Wèkali *chaung* in the Mudon Township. It benefits four *kwins*. There is no water rate on account of any of these works, nor is there any custom whereby the villagers raise funds for the maintenance, repair, and efficient working of the canals. No obligations rest on the villagers to provide labour or render any service in connection with the maintenance of the canals. As a rule therefore the canals are not well maintained.

CHAPTER V.

FORESTS AND MINERALS.

Forests—History; 1827-1828; 1829-1840; 1841-1863; Timber Trade; Modern Forest Administration; Thaungyin Division—Nature of Forest; Growth; Principal Timber Species; Reserves; Working Plans; Plantations. History of the Division under the Forest Department; Teak; Hardwoods; Other Forest Produce; Ataran Division; Nature of Forest Growth; Plantations; Extraction Routes; Working Plans; Kado and Agency Division; Exploitation; Forest Revenue; Minerals; Occurrences; Exploitation; Salt.

Forests—History.

The history of the forests of the district is of considerable interest, for it was upon teak that the fortunes of Moulmein were at first founded before the country had been opened up to the cultivation of rice. At the annexation the district was found to possess vast forests in the catchment areas of the Thaungyin, Mèpalè, Haungtharaw and Ataran rivers, containing teak and other valuable timbers. "The Tenasserim provinces are an almost uninterrupted immense forest from the water's edge to the most elevated mountain ridge," wrote Dr. Helfer in 1838.

Strict reservation was strongly advocated by Dr. Wallich, Superintendent of the Calcutta Botanical Gardens, who was deputed in 1827 to report on the forests, and who was impressed by the wasteful manner in which the timber was being extracted. Accordingly for two years Government worked the forests as a monopoly, but there was no local market, the timber had to be sent to Calcutta for sale, and the result was that operations were conducted at a loss.

1827—1828.

In 1829 therefore Government threw the forests open to private enterprise, and granted licences for the felling of timber of not less than four feet in girth on payment of a fifteen per cent *ad valorem* tax, payable either in cash or kind. No penalties were attached to breaches of the conditions of these licences, and the result was as might have been forseen. Mr. Maingy had reported that the forests were practically inexhaustible, so that a headman and eight or ten coolies, appointed in 1833, were considered a sufficient staff to plant and rear teak seedlings and also to check abuses by the licensees. The lack of a survey caused the greatest confusion over licensees' boundaries, which were constantly being violated by rivals. The method of extraction of the timber was wasteful in the extreme, trees being felled in the green, and when of too large a size to be handled by the limited means at the disposal of licensees of small capital, being deliberately cut up into shorter logs, to the great depreciation of their value. Felling was conducted with a complete absence of care and reckless of the damage which might ensue to other trees.

1829—1840

In 1837 Mr. Blundell reported that the rules instituted in 1829 were rapidly becoming unworkable, and Dr. Helfer having been deputed to examine the forests reported that they were being rapidly denuded altogether under the system in force. This was confirmed by a further report by Captain Halstead of H.M.S. "Childers."

In 1841, therefore, Captain Tremenheere, Executive Engineer, Moulmein, was appointed Superintendent of Forests in addition to his other duties, and was provided with a moderate establishment wherewith to carry out a survey, superintend the teak forests, and act as Government agent for the supply of timber for Government shipping purposes. A new set of rules was drawn up providing for resumption of licences, issue of twenty-year leases, increase of girth of trees to be felled to six feet, and the planting of five young trees for every one felled. These rules were modified in 1842, and fines and other penalties for breaches of their provisions

1841—1863

were substituted for resumption. Numerous other alterations followed in bewildering succession. Payments at this time were being taken in kind, a most unsatisfactory method, which gave rise to strong suspicions of private trading by the staff and caused considerable loss to Government owing to depreciation of the timber in store. The system was abolished in 1846, and when in the following year 5,000 logs stored at Ngante came to be disposed of, twenty-five per cent had to be condemned as useless.

The timber station at Kado was established in 1846, but the insufficiency of its staff led to endless delays. An experimental nursery established on the Ataran in 1842 had proved a failure, which was hardly surprising in view of the fact that until 1854 the Superintendents of Forests were all officers with no training or practical experience in forestry. One of them in 1848 propounded the theory that only the seeds of old and decadent teak were capable of germinating successfully. A qualified Conservator was appointed in 1854 on the recommendation of Dr. Falconer, Superintendent of the Calcutta Botanical Gardens. The present era of forest administration began in 1863, when the forests of Tenasserim, till then under the civil authorities, were transferred to the Forest Department.

Timber Trade.

Wasteful and unscientific as the administration of the forests had been, they none the less played a predominant part in raising Moulmein from the status of a fishing village to that of a flourishing town. The first saw-mill was established in 1833. In 1836 the timber revenue amounted to Rs. 20,804, which had risen in 1846 to Rs. 88,869, and in 1856 to Rs. 2,06,359. Ship-building began as early as 1830, when the "Devil," a 51-ton schooner, was built. Between that year and 1856, 123 ships were launched. The largest was the "Cospatrick," of 1,418 tons, launched in 1856, and subsequently burnt on a voyage from England to Australia. The next largest was the steamer "Malacca," of 1,300 tons, launched in 1853. In that year ten ships of a total gross tonnage of 4,527 tons were built, but this marked the zenith of the ship-building industry, which from that time steadily declined, till in 1877 only one ship, of 174 tons, was built. Despite the decline of ship-building the demand for teak has been maintained, with the result that Moulmein retains its place as an important timber port, and the district forest revenue of nearly 6½ lakhs for 1911 compares favourably with the Rs. 2,06,359 recorded for 1856.

Modern Forest Administration.

The Forest Act was passed in 1865, and a complete new set of rules was drawn up under it. The forests were constituted into circles subdivided into divisions, each

under the charge of Deputy Conservators. The forests of the district at first formed part of the Salween division of the Tenasserim circle. This division extended from the mouth of the Thaungyin to the Southern watershed of the Ye river, and included both the present territorial divisions.

The boundaries of the forest divisions were completely re-organized in 1896 when the three present divisions namely the Ataran, Thaungyin and Kado and Agency divisions were constituted. Since then there have been several minor alterations the chief of which transferred the Haungtharaw valley from the Ataran to the Thaungyin Division in 1922. These three divisions form part of the Tenasserim Circle, which is at present temporarily combined with the Sittang Circle. The Conservator has his headquarters in Rangoon. Each division is in charge of a Deputy Conservator all of whom have their headquarters in Moulmein. The total area of reserved forests in the Amherst District in 1933 was 1,071,061 acres. The boundaries of the Thaungyin division have recently been greatly extended in the Thatôn District.

Thaungyin Division.

The Thaungyin division comprises practically the whole drainage of the Thaungyin and Haungtharaw and also contains that part of the Thatôn District east of the Salween. It is roughly a triangle with its apex to the south, the northern boundary being the Thatôn District, the eastern and southern the Siamese frontier, and the western, the western watershed of the Haungtharaw and the river itself for a short distance. There are four major ranges and one minor range in the Amherst District, each of which is in charge of a Range Officer.

Nature of Forest Growth.

The Dawna mountains which run north and south across the direction of the monsoon have a considerable influence on the rainfall. West of the Dawnas the rainfall is in the neighbourhood of 200 inches per annum. East of the Dawnas it is much less, the Forest Department raingauge at Tawokywa which has been working since 1925 showing an average rainfall of 91.49 inches. As this average includes one year of unusually heavy rainfall the true average is probably between 80 inches and 85 inches. The cold winds from the mountains of northern Siam make the climate to the east of the Dawnas much colder than the climate on the west side, minimum temperatures as low as 35°F. having been recorded by Messrs. Steel Brothers, Limited, at Mèpalè. This difference in climate induce a corresponding difference in forest growth. The main difference is that west of the Dawnas natural teak and *Pinus Merkusii*

do not occur at all. The Dawna mountains mainly contain evergreen forests with big *kanyin* (*Dipterocarpus* spp.) higher up and hill oaks, etc., above 3,000 feet. The lower slopes and plains have mainly mixed deciduous forest with plenty of *pyinkado* (*Xylia dolabriformis*) and *in* (*Dipterocarpus* spp.). The *indaing* (*Dipterocarpetum*) is tending to die out, partly as a result of fire protection which has tended to bring in other species including teak. The types of forest are however very mixed: there is Savannah forest in the south and meadows in the higher Dawnas. *Pinus Merkusii* occurs mixed with *in* in poor *indaing* and usually at a height of between 800 and 1,500 feet. It is mostly found to the south of the Myawaddy road. It does not occur at all on the Taok plateau, as was stated in the previous edition of the Gazetteer, though it is found within a few miles of Taok village. Nor is it peculiar to the Amherst District as it is found also in the Shan States and in the other countries of south-eastern Asia. It has at present no commercial value and is tending to die out, probably on account of the increase in forest fires due to the population approaching the forest. A remarkable fact observed by Mr. H. B. Barrett, I.F.S., is that mosquitoes are absent in the areas where *Pinus Merkusii* grows, though they are plentiful in neighbouring areas where there are no pines.

Principal Timber **Species.**

East of the Dawnas the principal species is teak; other species have little value owing to the difficulties of extraction, though a reduction in the royalty and the increase of population have combined to produce a demand for hardwoods in the Thaungyin valley. A little *thitkado* (*Cedrela Toona*) has been extracted by Messrs. Steel Brothers, Limited. West of the Dawnas the most important trees are *pyinkado* (*Xylia dolabriformis*), *padauk* (*Pteracarpus indicus*), *Kanyin* (*Dipterocarpus* spp.) and *in* (*Dipterocarpus* spp.) There is a great deal of *padauk* in the low lands of the upper Haungtharaw. The commonest bamboo is *wagok* (*Oxytenanthera albociliata*), which is somewhat inimical to the regeneration of teak owing to the weakness of the culms which fall over and obscure the light. Other important bamboos are *tinwa* (*Cephalostachyum pergracile*), *hmyinwa* (*Dendrocalamus strictus*) *and wabo* (*Dendrocalamus Brandisii*).

Reserves.

There are seventeen reserves in the Amherst part of the division; nine of these are east of the Dawnas and all contain teak; in addition the Mèpalè-Thaungyin Reserve has plantations of teak totalling 7,038 acres, the total for the division being 7,635 acres.

The following working plans and schemes are in existence:—

Working Plans.

(1) The upper Thaungyin Working Plan.—This plan regulates the girdling of teak in the Mèkanè and Kyaukket Reserves and their extensions for the period 1915-16 to 1944-45. It is based on a basal area check, the annual yield of teak being fixed at 5,800 square feet.

(2) The Lower Thaungyin Working Plan.—This regulates the girdling of teak in the Mèpalè-Thaungyin Reserve. It is similar to the above, the basal area to be girdled annually being 7,000 square feet. It has been found desirable to reduce the girdlings recently in both the upper and lower Thaungyin areas, as the forest had been over-girdled in the past.

(3) Plan for the Hardwoods in the Haungtharaw Valley Reserves.—This plan is for the period 1924-25 to 1943-44 and covers all the reserves west of the Dawnas except the new Mitawun Reserve.

(4) A scheme for girdling teak in forests east of the Dawnas not under working plans.—This scheme is for the period 1931-32 to 1944-45 and covers the unclassed forests and the Tanke Reserve.

(5) A scheme for the extraction of hardwoods in the unclassed forests of the Haungtharaw.

Plantations.

Plantations are made with the assistance of *taungya* cutters and are regulated by a felling regeneration scheme for three years. The scheme is under revision at the time of writing. The area planted at present is 50 acres per annum by Tawokywa village in the Mèpalè-Thaungyin Reserve. The tending, thinning and cleaning of the plantations are regulated by a scheme. The oldest plantation dates from 1883. These plantations should be a good investment. Girdlings of over 7 feet 6 inches girth have been obtained from one or two of the oldest plantations and revenue is now being realized from thinning.

History of the Division under the Forest Department. Teak.

The Thaungyin forests were so remote as not to be affected to any extent by the hap-hazard methods of early forest administration mentioned above. Reservation began with the Mèpalè Reserve in 1878 and most of the important teak forests were reserved soon after. Reservation has proceeded steadily and is now almost completed. A rough working plan was made in 1879-80 which included a plan for the teak forests in the Thaungyin drainage. Sir Dietrich Brandis' girdling scheme was adopted in 1880 and expired in 1904, during which period 71,142 logs were extracted from the Upper

Thaungyin forests. About 11,600 trees were girdled in the Lower Thaungyin forests, of which 9,100 had been extracted by 1904. In addition there were about 6,000 marketable *aw-lè-nat-that* (*i.e.*, trees fallen by natural agency). Up to 1904 the timber was extracted departmentally by local Karen contractors and sold by Government in Moulmein. In 1905-06 Messrs. Steel Brothers got a contract to work out the remaining girdling and *aw-lè-nat-that* and any logs left behind by the contractors. In 1911 they were given a fifteen years lease, and another fifteen years lease was granted in 1926. The Company now pays Rs. 25 per ton for full-sized teak, Rs. 9 for under-sized teak and Rs. 9 for refuse teak logs. The teak in the Haungtharaw valley is in the hands of Messrs. Foucar's. There is very little natural teak, but groups are found which are said to have been planted at former village sites in the time of the Môn kings.

Hardwoods.

Until 1911 hardwoods formed only a very minor source of revenue, 80 per cent of the revenue being derived from teak. Since then there has been a tendency for the percentage of revenue from hardwoods to increase though the percentage is very variable. In normal years recently it has been about 30 per cent. The hardwood trade being in the hands of petty traders and contractors working under licences or short term contracts is particularly sensitive to market changes and has therefore been very seriously affected by the slump. Its recovery may, however, be expected to be equally rapid.

Other Forest Produce.

Other forest produce includes canes, bamboos, fuel, bat's guano, *thitsi*, *dammar* and cardamons. The revenue received is small. The canes and bamboos are mainly used for rafting hardwoods, so that the revenue from these varies with the extraction of hardwood. Bamboos for local use are easily obtained in unclassed forests or from free grants in reserves and there is little incentive to take out licences.

Ataran Division.

The Ataran Division is entirely contained within the Amherst District. On the north, south and west it is co-terminous with the district, except for the exclusion of Moulmein Town and Kado which form part of the Kado and Agency division. On the east the boundary follows the watershed of the Zami and Haungtharaw rivers as far as the Siamese frontier, and then follows the Siamese frontier as far as the boundary of the Tavoy District. The division consists of seven ranges, each under a range officer.

Nature of Forest Growth.

Most of the accessible part of the division consists of flat or undulating country on which the forest growth consists of *indaing* (*Dipterocarpetum*) and mixed

deciduous forest with a relatively high proportion of *pyinkado* (*Xylia dolabriformis*) and *taukkyan* (*Terminalia tomentosa*) on the stiffer soils. Teak is not very common and is chiefly found on the alluvial flats near streams and seldom grows on the steeper hills. It is often found in dense groups, very nearly pure, which are said to have been planted by villagers on their old village sites. Teak is far less common than it used to be owing to the heavy extraction of the last hundred years. Other trees more or less commonly found are *padauk* (*Pterocarpus macrocarpus*), *kanyin* (*Dipterocarpus* spp.), *thingan* (*Hopea odorata*), *zinbyun* (*Dillenia pentagyna*), *and pyinma* (*Lagerstroemia flos reginae*). *Wagok* (*Oxytenanthera albociliata*) is the prevalent bamboo with *waba* (*Oxytenanthera nigrociliata*) near streams. *Kyakat* (*Bambusa arundinacea*) was formerly plentiful along the Zami river, but flowered gregariously in the upper reaches in 1927 and is now seldom found. The south-east and south of the division is mainly mountainous or hilly country, which is largely covered with evergreen forest. Most of this is at present inaccessible. Between this type and the former lies a broad belt of mixed deciduous forest of richer quality than that described above, containing fine specimens of *pyinkado*, *padauk*, etc. The principle bamboo is *waba*.

Plantations.

Between 1877 and 1906 plantation was carried on more or less continuously but mainly in small patches of one to five acres. In 1911 nearly 200 acres was planted and a small area in 1915, but work did not start regularly again till 1919 since when it has continued up to the present. Plantations have been almost exclusively of teak, except between 1924 and 1928 when *pyinkado*, *yemane* (*Gmelina arborea*), *taukkyan*, *pyyinma* and a little teak was planted. The total area of plantations down to the end of 1932 was 3,686 acres. There are now two centres where concentrated work is being carried out. At Natchaung 125 acres of teak are planted annually and at Kyunchaung 100 acres. Work at Natchaung has been continuous since 1923, when the forest village was formed. At Kyunchaung plantations were made from 1920 and 1922 and work was resumed in 1930. Work at present aims at the regeneration of large continuous blocks of forest where the soil is suitable for teak, care being taken not to sacrifice immature teak or other valuable species already on the ground.

Extraction Routes.

The Zami river forms with its tributaries the chief extraction route for timber from the division. In the south the Ye river performs a similar function.

Reservation in the more accessible parts of the district has been completed and seventeen reserves have been formed. The Yechaung Reserve (2,27,379 acres) is much the largest reserve in the division. Further extensive reservation will probably be made at the head waters of the Gwingyi, Zami and Winyaw rivers.

Reserves.

A working plan was drawn up for the whole division in 1925-26 and is still in force. It provides for the girdling of all teak trees over seven feet in girth over the whole division once in 30 years. It also provides for the working of other hardwoods in reserved forests on a sustained yield basis. Work under the section has however been closed down, while the unreserved forests are being extracted as rapidly as possible. The reason for this is the rapid destruction caused by *taungya*-cutters. There is however some evidence that the marketable timber in unreserved forest has now mostly been extracted except possibly in the Ye range, and it will soon be necessary to open the reserves again.

Working Plans.

The Kado and Agency division has nothing whatever to do with the administration of forests or the extracting of timber. It deals solely with the levying of revenue upon all timber floated down the rivers which debouch in the vicinity of Moulmein. This revenue is derived from royalties on timber extracted from forests in Burma and a 7 per cent *ad valorem* duty levied on timber extracted from Siam, Karenni and the Shan States.

Kado and Agency Division.

Its territorial jurisdiction includes both banks of the Salween river up to flood level from the mouth of the Thaungyin to the sea, and thus deals not only with timber extracted in the Amherst and Thatôn districts and the Southern Shan States, but also with that from the forests on the Siamese side of the frontier, which finds its way into the Thaungyin and thence into the Salween. Kado and Moulmein (Battery Point) timber depôts and the island of Bilugyun are also included within the limits of the division. A Deputy Conservator is in charge. The timber, identified by the hammer marks put on in the forests, is collected at the timber depôts, when the revenue is assessed upon it. After payment of the revenue it is removed by the owners. Drift timber is similarly collected to be redeemed in like manner by the owners, or sold by auction if unclaimed.

No extraction of timber is undertaken by Government in either the Thaungyin or the Ataran division. Teak is extracted under leases, which are issued for a period of fifteen years. The

Exploitation.

revenue is paid on the timber collected at the depôts at the rate fixed in the leases. The lessees can extract only timber girdled by the Forest Department and dead or fallen timber. Other timbers, such as *in* and *pyinkado*, are extracted under trade licences or petty contracts. The licensee is permitted to extract a given number of tons of the timber required within a given area, while a contractor is given an area and has to extract from it all marked trees which are marketable, similar prepaid licences are also issued for the extraction of bamboos and other minor forest produce. Rights to collect *dammer, thitsi*, cardamons, and bat's guano from the unclassed forests of the Ataran, Thaungyin and Thatôn-Salween divisions are auctioned every three years. The right to collect royalty on fuel entering Moulmein is also auctioned every three years.

Forest Revenue.

The forest revenue is derived from the extraction and collection of forest produce and to a minor extent from land revenue from cultivated areas in reserves, capitation tax, removal pass and sawpit licence fees, rent for departmental buildings, and compensation from offenders against the Forest Act. The average annual revenue of the Thaungyin and Ataran divisions for the years from 1919-20 to 1932-33 was Rs. 6,40,545. But for the great fall in commodity prices in the last three years the average revenue would be considerably higher. In 1930-31 the revenue had fallen to Rs. 3,47,655 and in 1931-32 to Rs. 3,03,847. In 1932-33 there was a rise in revenue to Rs. 3,61,283 but this increase was entirely in the Ataran division. The revenue for 1933-34 is showing a tendency to improve.

The average forest revenue of the Kado and Agency Division for the five years 1928-29 to 1932-33 was Rs. 2,24,246. There was a large drop in 1931-32 and a substantial improvement in 1932-33. The Kado and Agency Division gets the bulk of its revenue from the duty on foreign timber coming down the Salween and now that the Bombay-Burma Trading Corporation has closed down work on the Salween side of Siam, revenue derived from this service will be considerably diminished in the near future.

Minerals.

There is considerable exploitation of minerals in the district. The average annual revenue from rents, royalties and fees on minerals for five years 1927-28 to 1930-31 amounted to Rs. 30,782, the greater part of which came from quarries.

Occurrences.

Cotter in his "Mineral Deposits of Burma" (Government Press, Burma, 1924), mentions the following mineral occurrences in the Amherst District. Antimony is found at Thabyu (Lat.

15° 31′, Long. 98° 31′) in the form of stibnite associated with a calcareous chert. There are extensive outcrops. The largest lode was traced for 600 feet and had a thickness of at least 20 feet. A boulder of barytes was found in the neighbouring stream. Copper slag is said to occur at Kyaikmaraw and at two other localities further south. Copper is also said to occur in the Migathat stream in the south of Kya-in and in the eastern mountains. Old writers speak of occurrences of galena in the limestones between the Dawnas and the Thaungyin and similar occurrences are said to be common and to occur as far south as the sources of the Haungtharaw. Molybdenum is said to occur near Mawkanin in Ye Township. Efflorescences of sulphates have been reported but are of little importance. Wolfram is said to occur near Ye. Tin ore (cassiterite) has been worked in Bilugyun and to the east and west of the Taungnyo range at Sakangyi, Lutshan and Paya. Pottery clay occurs and is worked near Moulmein. Limestone, quartzite, granite, etc., all useful for building materials and road metal are common throughout the district. Iron is reported to exist in the Thaungyin area as also are coal, sapphires and rubies, but the existence of precious stones has also been denied. There are tertiary basins containing oil-shales at Tichara near Mèpalè and along the Thaungyin river.

Exploitation.

A company called the Mèpalè Oil Company took over Moola's Oil lease near Tichara but has not done anything much yet, though plant has been erected. A Mrs. Shawloo applied for a lease in the Mèpalè-Thaungyin Reserved Forest but has done no work so far. Antimony mines were worked on a small scale for some time between the Mitawun Reserved Forest and the frontier but work stopped some years ago. Tin has been worked in various places and there is at present a small tin mine at Myohaung near Thanbyuzayat: a certain amount of tin is produced regularly and the mine is said to be capable of development. Potter's clay is dug and worked by the Nyaungbinzeik villagers. There are road metal quarries at Kyauktalon in Mudon and Pyataung on the Ataran.

Salt.

By far the most important mineral industry in the district is salt manufacture, which is carried on along the coast in the Amherst and Ye Townships at Amherst, Sangyi, Panga, Karokpi and Hnitkarin, the total area in use for this purpose being 582 acres. The method of manufacture is by the solar evaporation of sea-water in shallow beds until it reaches saturation point—25 degrees Baume—and then by boiling the saturated brine in large shallow pans until salt is deposited. Salt

Factory Licences are issued free of fee but manufacture is permitted only within certain prescribed areas. A factory consists of evaporating beds, a strong brine storage tank, a boiling shed and a bonded godown. Salt is issued from bond on payment of duty at the rate in force at the time of issue. No duty is collected on salt required for industrial purposes. Amherst salt has improved in quality during the last few years and contains approximately 98 per cent of sodium chloride. Profits are difficult to estimate owing to the average salt-boilers' ignorance of book-keeping. From enquiries made, however, it has been found that the average cost of production has fallen within the last ten years from Rs. 18 to Rs. 14 per thousand viss of salt. The selling price varies considerably according to the market but at the present rate of duty Rs. 90 would be a fair price. The duty being Rs. 68-5-9 and the cost of production Rs. 14 the manufacturer would realize a profit of Rs. 7-10-3 per thousand viss. The average output per factory during 1930-31, which was the best year since 1922-23, was 204,900 viss, so the average profit per licensee for that year would not be more than Rs. 1,600. The administration of salt revenue was transferred from the Government of Burma to the Government of India in May 1928. A minor method of salt manufacture is by extracting the salt from saline earth or sand by placing the earth in a sieve and pouring water over it. The water percolates into a pot and is then boiled till the salt is precipitated.

CHAPTER VI.

OCCUPATIONS AND TRADE.

OCCUPATIONS—Agriculture; Arts and Industries; Ceramics; Silver-work; Ivory Carving; Fishing; Boat Building; Other Industries. Factory Industries; TRADE—Sea-borne; Foreign; Coasting Trade; Overland Trade; Local Trade.

Occupation—Agriculture.

The majority of the population of the district is dependent on agriculture. At the last census 62 per cent of the earners and working dependents were agriculturists. The percentage exclusive of Moulmein town is probably over 70 per cent.

A large proportion of the urban population also has a close connection with agriculture, such as rice mill hands, clerks, brokers and boatmen engaged in transporting the paddy to the Moulmein market. The cultivator on inferior and remote lands supplements agriculture with numerous subsidiary occupations, such as fishing, cattle grazing for hire, carting and cooly work in connection with timber extraction etc. On the banks of the Winyaw the Metayo

villagers supplement *mayin* cultivation by cutting the *thin* reeds for export to the Delta, where the reeds are woven into mats. Cotton weaving is a domestic industry throughout the district, and most of the clothes worn during work in the fields are home-made by the cultivator's womankind.

Arts and Industries.
Ceramics.

Pottery and tiles are manufactured on a large scale at Nyaungbinzeik, a village near the mouth of the Ataran. The pots made are the common unglazed household pottery used in Burma.

The industry is a domestic one, and is carried on during the dry weather. The pots, which are of various sizes, having been moulded are baked for twelve hours to the number of three or four hundred at one time. A household of four or five does three firings a month and hired labour is rarely employed. The clay is obtained from the Kyaikparan *chaung*.

These pots are inferior to those made at Zathabyin on the Thatôn bank of the Gyaing, which in turn have not the same repute as the Shwegyin pots.

The tiles made at Nyaungbinzeik are widely used for roofing *pongyi kyaungs, zayats,* and the houses of the well-to-do.

Roughly glazed pottery, *i.e.*, Pegu jars, etc., is manufactured at Kyauktan to the south of Moulmein. Bricks are manufactured on the paddy fields within Moulmein Town, and elsewhere as required for the construction of pagodas, etc. The bricks are usually of poor colour and quality.

Silver Work.

A certain amount of gold and silver-work is produced in Moulmein town, the chief demand being for silver bowls, betel boxes and ornaments. The work is of the typical Burmese type, and is paid for at the customary rate of one rupee per rupee's weight of silver for the best work and eight annas for inferior productions, the purchaser supplying the silver. Karen neck-bands of silver, of a peculiar pattern, are made in Kawkareik.

Ivory Carving.

There are one or two good carvers in ivory and wood in Moulmein but their output is small, and the prices usually high. Articles commonly made include carved whole tusks, boats, paper knives, images of the Buddha, small statuettes of dancers and local types, cigarette boxes and other circular boxes.

Fishing.

There are no large leased inland fisheries in the district and most inland fishing is done on a small scale with fixed or moveable traps. Sea-fishing is carried on in the estuary and all down the coast. In the estuary and in the shallows of he sea

the fishing is done almost entirely by trapping. The two usual traps are the *ka*, a large fixed wedge-shaped trap into which the fish are forced by tidal action and caught at low tide, and the *damin* a small tubular trap of bamboo about eight feet long intended for catching prawns and small fish. Deep sea fishing with nets is mainly carried out by Tavoyans in schooners (Burmanice, *Si-ku-na*), who visit the district during the dry weather. Their headquarters are at Zibyuthaung at the mouth of the Ye river where there is a flourishing fishing village. Another large fishing village is Sèbala on Bilugyun. There are a number of small fishing villages (*daminzeik*) all down the coast. After local requirements and in the case of fisheries near Moulmein, the Moulmein market, have been supplied, the bulk of the fish is dried, the prawns and smaller fish being made into *ngapi* (fish paste) which is the staple condiment with rice and the larger fish being dried in the sun. The principal large fish caught are *kathabaung* and *kakkadit*. The chief small fish is *ngahnat* which is dried and is a standby among the poorer people. Prawns and cray-fish abound. Oysters are found in the tidal creeks. Turtle's eggs are collected at the mouth of the Ye river.

Boat Building.

As noted elsewhere, Moulmein was previously a flourishing centre for ship building, quite large and famous vessels being constructed there. The introduction of the steel ship was the death blow of this industry but boat building continued to be extensively carried on in Moulmein and at Ye and Kawdut. This industry has also now fallen on evil days, partly owing to cheap boats made in Rangoon and the difficulty of getting good timber, but in the last year or two mainly owing to the slump. There are still however a number of boat-building yards in Moulmein and large boats are still constructed in Ye and Kawdut for local requirements. Small boats, sampans and dugouts are all of local construction.

Other Industries.

There are numerous other industries carried on in the district to supply local needs, such as cart-making and wheelwright's work, mat weaving of bamboo or the leaves of the *thabaw* plant, carpentry, *in* leaf and *dhani* thatching, but these are common to many parts of the country and need no detailed description. Blacksmiths are common in the villages and there are a number of coopers and tinsmiths in Moulmein. The coopers make large water-casks, a necessity in a place where half the town is still without an adequate water supply during the hot weather, and tubs of all sizes. A small new industry, which is of little economic importance but interesting as a genuine attempt of local initiative to deal with the slump in the prices of raw materials, is the manufacture of inflated rubber balls from strips of dyed rubber. The balls

do not last very long but are very cheap and at present command a ready sale.

Factory Industries.

Factory industries consist mainly of rice mills and saw mills. There is also an iron foundry. The Irrawaddy Flotilla Company, Limited, has a dockyard in Moulmein which employs about 150 hands. The rice and saw mills are of course engaged in dealing with the paddy and timber produced in the district and neighbouring districts. The first saw mill was established in 1883 and the first rice mill in 1860. The majority of the mills are in Moulmein. The principal European firms at present working in Moulmein are Messrs Steel Brothers, Limited, who work both timber and rice, the Arracan Company, Limited, who work rice only, and Messrs. Findlay & Sons and Messrs. Foucar & Company who work timber only. The Bombay-Burma Trading Corporation, Limited, has recently closed down its operations in the district. The principal Indian industrial concerns in Moulmein are Babu Bhagwan Dass, R. Shwe Buksh and Rai Bahadur H. Rookmanund Babu, all of whom deal in timber and the last in rice also. The principal Burmese industrial concern is perhaps the Moulmein Electric Supply Company, but there are a number of other Burmese timber and rice firms of some standing. There are also several Chinese firms of standing. The total number of employees in the industries which come under the Factory Act was 5,500 in 1932, of whom 98 were women and 28 were children. Outside Moulmein rice mills are practically the only industrial concerns, though there is a saw mill at Ye. The principal rice mills outside Moulmein are at Kawkareik, at Kalwi, Payagyigon and Karaikthit in Bilugyun and at Kalawthut in Mudon. There are however a number of other small mills which mill rice principally for local consumption.

Trade—Seaborne; Foreign.

As the Customs Department was not established until 1855, no figures are available from which to study the early sea-borne trade of the district. Prior to the opening of the country to the cultivation of rice the trade was chiefly in timber, and some conception of its growth can be obtained from the fact that the revenue from timber grew from Rs. 20,804 in 1836 to Rs. 1,88,350 in 1854-55. By the time of the establishment of the Customs Department the rice trade had already begun to make its way, and out of total exports of a value of nearly five lakhs in 1855-56 less than one-and-a-half lakhs represented timber, the bulk of the residue being rice. By 1875-76 the value of exports had risen to Rs. 1,18,44,357. In 1910-11 the figures were Rs. 1,37,45,126 and in 1931-32 Rs. 1,24,08,560. In the interval between 1875 and 1910 Rangoon had risen to its

present position as a timber and rice exporting port, in competition with Moulmein and drawing its supplies from a vastly wider area. It was not therefore to be expected that Moulmein could retain its pre-eminence, but, as the statistics show, although Rangoon has surpassed, it has not had the effect of greatly reducing the trade of the port.

The timber trade was in former days mainly with Europe, but the foreign rice trade was at its inception mainly with the Straits. Burma rice, however, gradually made its way in the European markets and, whereas in 1866-67 only 1,102 tons were shipped to the United Kingdom, in 1873-74, in spite of the scarcity in Bengal, the amount had risen to 21,341 tons as against 15,712 tons exported to the Straits. In 1931-32 the value of exports of rice to foreign countries was Rs. 1,12,75,765. The degree to which rice has outstripped timber as the predominant export may be judged from the fact that in 1931-32 the value of the foreign exports of timber was Rs. 1,17,093 only. At the present time Germany is Moulmein's best foreign customer. In 1931-32 the value of the exports to Germany was Rs. 52,34,282. The next best customer in the same year was Poland (Rs. 25,01,204). Exports to the Netherlands amounted to Rs. 11,98,415 and those to the Straits to Rs. 11,20,458. Exports to the United Kingdom amounted to Rs. 2,25,456, while the value of the total foreign exports was Rs. 1,24,08,560.

Imports from foreign countries are of course much less, as the area served by the port of Moulmein is comparatively small, and much merchandise used in this area enters the country at Rangoon. In 1931-32 the direct imports from foreign countries amounted to Rs. 3,66,919.

Coasting Trade.

Since Burma is a province of the Indian Empire the figures for the coasting trade relate not only to trade with the other ports of Burma but also with all the ports of India. Rice is exported in large quantities to India. The other principal exports are timber, fruit and hides. In 1931-32 the value of the total exports of rice to the ports of India and Burma amounted to Rs. 1,18,32,737 and the exports of timber to Rs. 46,09,757. The total value of exports by the coasting trade amounted to Rs. 1,66,95,973. During the same year the value of the imports was Rs. 30,98,863, of which Rs. 25,58,521 came from the other ports of Burma, Rs. 4,63,366 from Bengal and the rest from Madras and Bombay. The coastwise imports are very varied and include vegetable oils, *ghi*, tobacco, gunny bags, sugar, spices, *ngapi*, cotton twist and yarn, piece goods, machinery, metals and kerosene.

Practically the whole of the district trade passes through the port of Moulmein, an account of which, together with statistics of revenue, tonnage entering and departing, etc., is given in Chaapter XIV.

Overland Trade.

No frontier custom-houses were established until 1876, but considerable care was taken to foster the overland trade. Mention has already been made in Chapter II of the successful missions to the Northern Laos, Labaung and Zimmè in 1830 and 1834 to establish a trade in cattle. In 1847 Chinese caravans began to pass through to Moulmein. In 1880-81 the total imports and exports between the district and Siam were valued at Rs. 1,46,000 and Rs. 51,000 respectively, and these had risen in 1903-04 to 25 and 17 lakhs. The main route is from Moulmein north-east-wards through Kawkareik and Myawaddy. A second route is one called the Kyeikdon route, leading south into Southern Siam. The principal imports from Siam are ponies and cattle, paddy, rice, unrefined sugar, silk and tobacco. The principal exports to Siam are salt, dried fish, refined sugar, preserved provisions, condensed milk, candles, kerosine oil and matches. During the five years 1926-27 to 1930-31, the average imports and exports by the Myawaddy route as recorded by the trade registration office at Thingannyinaung were as follows:—

IMPORTS.

Silk Polein ...	...	3,767 pieces.
Raw Silk ...	...	914 bags.
Husked Rice ...	...	9,007 ,,
Paddy ...	...	29,812 baskets.
Gram and Pulses	...	2,253 ,,
Unrefined Sugar	...	20,896 viss.
Tobacco and Others	...	17,132 ,,

EXPORTS.

Cotton Twist and Yarn ...		4,146 bundles.
Kerosene Oil ...	...	5,463 tins.
Matches ...	...	1,134 ,,
Hardware ...	...	16,163 viss.
Dry and Wet Fish	...	23,257 ,,
Preserved Provisions, etc. ...		12,063 ,,
Salt ...	...	32,220 ,,
Refined Sugar	...	17,975 ,,
Condensed Milk	...	6,572 ,,
Wheat ...	...	180 ,,
Tobacco and Others	...	13,052 ,,

The local trade is carried on chiefly through the medium of shopkeepers, brokers, hawkers and bazaars. For several years the big bazaar, on which a tax was imposed in 1830, and the Tavoyzu bazaar, built by Government in 1836, had a monopoly in Moulmein, the stalls in them being leased by the local authorities. The Bengal Government, however, was opposed to the principle of raising revenue from bazaar rents, and in 1846 the privilege of establishing private bazaars was conceded, at an immediate sacrifice of a revenue of nearly Rs. 40,000. In 1848 the big bazaar was sold for Rs. 51,200, and in 1865 the Amherst bazaar was sold by order of the Chief Commissioner. As a result of this policy the eleven considerable bazaars in Moulmein are all private, and the Municipality suffers from the absence of a considerable source of revenue enjoyed by other towns. There are no publicly owned bazaars anywhere in the district except at Kawkareik and outside Moulmein private bazaars are very rare. Their place is taken by local shops, of which there is at least one in every considerable village and itinerant hawkers especially those who go by boat in the riverine areas.

Local Trade.

CHAPTER VII.

Means of Communication.

Waterways; Railways; Roads; Fisheries; Means of Transport; Rest-houses; Posts and Telegraphs.

For many years after the annexation almost the only means of communication, both within the district and with the outside world, were by water. Until 1845 communication with Calcutta depended entirely on the chance of a vessel being on its way there, while the Commissioner had only a small schooner in which to visit the south of his charge, until she was replaced by a larger vessel in 1841.

Waterways.

In 1854 regular services to Penang and Rangoon were started, and in 1856 the Moulmein Steam Tug Company began to run steamers regularly to Tavoy and Mergui. The same company also ran a service to Rangoon, and was subsidised by Government in connection with the mails, until it was taken over in the eighties by the British India Steam Navigation Company.

For some time the British India Steam Navigation Company maintained a regular service with Rangoon three times a week, and also a fortnightly service down the Tenasserim coast, calling at the mouth of the Ye river when conditions were favourable.

At the present day the British India Steam Navigation Company maintains a forthnightly service from Rangoon to Penang, calling at Moulmein, Tavoy, Mergui and Victoria Point on the outward passage but returning from Penang to Rangoon direct. A Chinese steamship company also runs a fortnightly service between Moulmein and Penang, calling at intermediate ports. There are therefore four ships a month from Moulmein to Penang and two from Penang to Moulmein. This does not however constitute a weekly or fortnightly service as the ships of the two companies do not depart and arrive at intervals of exactly a week. Local sea-going craft sail along the whole coast during the dry weather, and during this period of the year there is a local made motor-boat at Ye which sails to places in the Tavoy district as required. There is a regular ferry service operated by the Irrawaddy Flotilla Company, Limited, to Martaban, and a regular service of launches belonging to the same company up the Salween.

The internal communications of the district are mainly by river. The first regular service was that of the Salween Steam Navigation Company, founded in 1882, which was incorporated with the Irrawaddy Flotilla Company in 1900.

This company now runs, in addition to the services mentioned above, a regular service of launches between Moulmein and Natmaw in Bilugyun, up the Gyaing to Kyondo, up the Ataran and Zami to Kya-in Seikkyi, and to Kalwi and Darè in Bilugyun.

A number of navigable rivers and creeks, such as the Hlaingbwè and Pata streams, the Haungtharaw, Kayin and Winyaw streams, all of which are navigable by country boat for long distances, serve to connect the inhabitants of the interior with these launch services. In the Ye township numerous tidal creeks afford a ready means of local communication, but in the rains drift from the hill streams is apt to impede navigation. A navigable channel known as the Yegyaw creek flows down the centre of the township for about fifteen miles parallel with the coast and connects the Lamaing streams with the Ye river. The Ye river is only navigable for steamers of light draught under favourable conditions of tide and weather, and is difficult of approach owing to reefs off the shore.

Railways.

Moulmein is connected by steam ferry with the Pegu-Martban branch of the Burma Railways. This forms the principal means of communication with Rangoon for all passengers and for light and express goods traffic and supplements the Salween as a route into the neighbouring district of Thatôn. A branch of the Burma Railways from Moulmein to Ye was

opened in 1926, but it is doubtful whether the volume of traffic will justify this railway unless it is extended at least to Tavoy and Mergui.

Roads.

The most important roads in the district are those from Moulmein to Amherst and from Kyondo to Myawaddy. The Moulmein-Amherst road is 55 miles in length, and was made at a cost of Rs. 6,40,770. This route was originally opened in 1833, and together with a road constructed by King Alaungpaya between Amherst and Mergui, which was re-opened in the ame year but has since fallen into disuse, constituted for many years the sole road communication of the district. It was, however, allowed to fall into disrepair, and was re-opened in 1861. It is metalled as far as Thanbyuzayat and surfaced with laterite from Thanbyuzayat to Amherst and is tarred for a distance of 18 miles from Moulmein. It is interesting to note that as early as 1907 two rival firms maintained service of motor omnibuses on this road between Moulmein and Mudon, the fare for the nineteen miles being one rupee. At present a large number of small buses ply between all the villages on the road, the fare from Moulmein to Amherst being Rs. 1-8-0. The Kyondo-Myawaddy road which runs through Kawkareik was originally constructed in 1906 at a cost of Rs. 5,31,440. It is 55 miles in length and is bridged throughout. It is metalled from Kyondo to Kawkareik and surfaced with laterite for a further eight miles as far as Third Camp which is at the foot of the Dawnas. This road crosses the Dawnas and magnificent views are obtainable en route. Frequent motor-buses ply between Kyondo and Kawkareik, and during the dry weather also proceed to Myawaddy regularly, although the hilly section of the road is really unsuitable and unsafe for motor traffic. This road is important as the means of connecting the plain of Kawkareik with the river system and so with Moulmein, and also as being the main trans-frontier route into Siam. There are Public Works Department bungalows at Kyondo, Kawkareik, Third Camp, Misty Hollow, Sukli, Thingannyinaung and Myawaddy. There is a proposal to make a new diversion from Kawkareik to Thingannyinaung which will greatly improve the alignment of the road.

A road, 17 miles long, from Ye to the Amherst-Tavoy district boundary has recently been opened and is surfaced with laterite, fully bridged and drained. A regular service of motor buses runs between Tavoy and Ye in the dry season by this road, thus connecting Tavoy with the Moulmein-Ye railway. There is a possibility that a bridge may be constructed over the Ye river, but at present the river must

be crossed by ferry, a crossing which to any one with much luggage is frequently difficult and tedious in the extreme, owing to the muddy banks of the river which are exposed at the low tide. There is also a road of sorts between Kya-in Seikkyi and North Kya-in on the Haungtharaw. The first thirteen miles to Mètharaw are metalled and passable for motor traffic. The remainder of the road is only a cart track and is probably for the most part impassable during the rains.

A metalled road on which there is a frequent service of motor buses joins Moulmein and Kyaikmaraw, and another short stretch of metalled road runs from Natmaw to Chaungzon on Bilugyun. The above roads are maintained out of provincial funds by the Public Works Department who also maintain a few minor feeder roads.

The District Council maintains a number of secondary roads, the chief of which are the following:—

(1) from Muritgale to Kalwi on Bilugyun via Chaungzon. Six miles of this road are metalled and the rest surfaced with laterite. It is passable for motor traffic; (2) the Kyaikmaraw-Kyauktalon road which crossing the Taungnyo hills connects the Moulmein-Kyaikmaraw and the Moulmein-Amherst roads. The road is bridged and partly surfaced with laterite. It is passable for motor traffic; (3) the Mudon-Kyunwa road which also crosses the Taungnyo hills into Kyaikmaraw Township. It is either metalled or surfaced and is passable for motor traffic; (4) the Nyaungbinzeik-Zathabyin road, a road surfaced with laterite which connects the Ataran and the Gyaing. It is principally used as a means of approach to the Karon caves. The Forest Department maintains a number of tracks in the more out-of-the-way parts of the district. These are not usually passable for wheeled traffic during the rains but during the dry weather several of them, such as the one which crosses the Taungnyo range from Hnipadaw to Kalè, are of considerable use to the general public. There are also a number of village roads but most of them are impassable during the rains. Most of the "roads" shown on the Survey of India maps are tracks across the paddy fields, which although they form a good means of communication for carts or ponies in the dry weather do not exist during the rains., The telegraph road from Thanbyuzayat to Ye which is shown on the maps has also ceased to exist as the telegraph line has been moved to the railway. There is therefore apart from the railway, no through means of communication by land between Thanbyuzayat and Ye. A motor road has however been surveyed and if this were constructed it would greatly assist in opening up the

southern parts of the district and would be of great benefit both to local administration and to through communications with Tavoy and Mergui.

The through routes into Siam have already been mentioned in Chapter I. The only one of them which can be termed a road is that *viâ* Kawkareik and Myawaddy already described above.

Ferries.

There are two ferries across the Ataran, one at Nyaungbinzeik connecting Moulmein with the Nyaungbinzeik-Gyaing road, and one at Kyaikparan. There is a ferry across the Gyaing at Gyaing. The Ye township has four ferries, across the Ye, Chaungtaung, Kawdut and Taungka streams respectively. All these are put up to auction annually, the rents paid by the lessees being credited to the District Council or the Deputy Commissioner's local fund.

Means of Transport.

Besides the regular steamer services, country-boats of all sizes and sampans are usually obtainable at reasonable rates on all navigable streams. There is a daily motor-boat service between Ye and Asin on the Ye river. Carts are usually procurable in the plains at a rate of from four to six annas a mile. Horse tongas can be hired in Bilugyun and near Moulmein. There are motor-bus services between Moulmein and Amherst, Moulmein and Kyaikmaraw, and Kyondo and Kawkareik, and occsional motor buses are met with elsewhere.

Rest-houses.

There are Public Works Department Bungalows at Lettet, Thanbyuzayat and Amherst (two) on the Moulmein-Amherst road. There are also Public Works Department bungalows at Chaungzon, Kyaikmaraw, Kya-in Seikkyi, Karokpi, and Ye and along the Ye-Tavoy road. The bungalows on the Kyondo-Myawaddy road have been mentioned above. The Forest Department maintain a large number of bungalows, most of which are in out -of-the-way parts of the district but those at Chaunghnakwa and Thanbaya on the Ataran system and at Tinyu and Hnitkarin on the railway and at Kawkareik are frequently of use to officers of other departments and ordinary travellers. *Zayats* are fairly frequent, but not so common as in Upper Burma.

Posts and Telegraphs.

Besides the head Post Office at Moulmein, there are twenty-five sub-offices and branch offices throughout the district, and a sufficient number of telegraph offices. Telegraphic communication dates from 1863, when a line was opened

between Shwegyin and Moulmein, Shwegyin having been connected with Pegu and Rangoon in 1858. The Moulmein-Amherst line was constructed in 1873. There is telegraphic communication between Moulmein and Rangoon, Moulmein and Tavoy, Moulmein and Myawaddy and between Moulmein and all township headquarters.

CHAPTER VIII.

FAMINE AND SCARCITY.

The most common cause of famine and scarcity is drought, which in any ordinary sense is conspicuously absent in the Amherst District. The copious rainfall and riverine inundations should provide all the moisture required for the most exacting crop. Unfortunately however the rainfall is not always well distributed and floods and failure of the late rains sometimes cause considerable local scarcity. It is unusual however for this scarcity to be serious except in the late planted riverine regions and nothing can be imagined short of a complete change in the meteorological conditions of the Bay of Bengal or the advent of some new and highly destructive pest of the rice crop which would be likely to cause a true famine in the district. The local scarcity can however sometimes be quite serious, in the riverine areas, and a failure of the *taungya* crops such as sometimes occurs causes something like famine in the hilly regions. In 1910 it was found necessary to issue free supplies of seed grain to certain hill villagers in Kawkareik, and there was a considerable amount of distress, though famine relief works were not found necessary. During the years 1919 to 1923 there was considerable distress owing to flooding in the riverine areas. Unfortunately owing to the destruction of files records are very incomplete, but the following facts have been elicited. In the year 1919-20 a sum of Rs. 1,02,421 was set aside to be spent in relief expenditure, Rs. 60,246 being expended on public works, Rs. 33,575 on forest work and Rs. 8,600 on gratuitous relief. It appears however that up to January 1920 the only expenditure actually incurred was Rs. 10,00 on the Kalè-Hnipadaw road and Rs 8,600 in gratuitous relief. Further relief works carried out between January and March 1920 included improvements to the roads from Kya-in Seikkyi to the Haungtharaw., from Kyaikmaraw to Kyauktaton, from Kalè to Hnipadaw, from Mudon to Kyunywa and from Nyaungbinzeik to the Gyaing. Rs. 5,291 were also spent on repairs to the Yegyaw embankment and Rs. 1,169 on

improvements to the road from Kya-in Seikkyi to Mètaket. The villagers did not however turn out in the numbers expected and considerable sums had to be surrendered from the allotments. A conference of district officers held in March 1920 decided to continue the relief works as a period of serious scarcity was expected between July 1920 and the time for the reaping of the *taungya* crops. The Executive Engineer reported in January 1921 that very few famine labourers were attending the works regularly and that they refused to work at the wages offered. This would appear to be fairly conclusive evidence that the relief works were not really required, but the Deputy Commissioner decided to continue most of the works. It appears that up to the end of March 1921 a sum of Rs. 3,53,902 was expended on famine relief works which included, besides improvements to the roads mentioned above, the construction of roads from Kyunywa to Kawwet in Kyaikmaraw Township and from Kyondo to Kyonbaing in Kawkareik Township, the survey of a road from Kya-in Seikkyi to Seikkale and Kyunchaung, the construction and repair of embankments along the Haungtharaw and the clearing and widening of the Lethan *chaung*. In April 1921 the question of closing down the relief works was again raised but a further allotment of Rs. 37,944 was sanctioned for work on the Kyunywa-Kawwet and Kyondo-Nabu roads. It was however ultimately decided to stop work on the latter road which was said to obstruct the natural drainage. In April 1922 the Deputy Commissioner reported that there was no actual distress in the district but proposed to continue the work on several roads. Actually however nothing much seems to have been done, mainly because funds were not available. Proposals to revive the relief works were made in August and September 1923 and some work was apparently done on the Kya-in Seikkyi-Haungtharaw road, and the Kyondo-Myawaddy road, but the records are fragmentary. It appears in that in all a sum of Rs. 5,28,767 was spent in relief works between 1919 and 1924, but it is obvious from such records as remain that no true famine existed during most of this period. The Executive Engineer complains frequently of the shortage of labour and the unwillingness of the labourers to work at famine relief wages and one may suspect that the anxiety of the district authorities to continue the works was prompted more by a desire to improve the communications of the district than by actual necessity.

In conclusion it may be noted that the spread of the practice of late-planting in the riverine areas in the last ten years has had the effect of lessening the possible destruction of crops by floods though the possibility of destruction through a failure of the late rains remains

CHAPTER IX.

General Administration.

General Administration; Subdivisions; Townships; Judicial Administration—Civil; Registration; Criminal Justice; Crime; Police; Jails; Public Works—Public Works Department; The District Cess Fund; Light-houses.

General Administration.

In Burmese times Amherst district formed part of the *Myowun*ship of Martaban, but in effect the *Myowun's* authority only extended for a few miles south of Moulmein, and *thugyis* of villages beyond that area were practically independent. At the annexation Sir Archibald Campbell became Chief Commissioner of the provinces of Tavoy, Mergui, Ye and Eastern Martaban, as they were styled, and it was he who shifted to Moulmein the headquarters originally established at Amherst. He was succeeded in 1829 by Mr. Maingy, who in turn gave place to Mr. Blundell in 1834. In 1835 Mr. Blundell as Commissioner had under him a Senior Assistant in charge of Amherst district with offices in Moulmein, and a Junior Assistant in Amherst. The police were in charge of another Junior Assistant, who was also a magistrate. By the time Mr. Blundell was succeeded by Major Broadfoote grave corruption seems to have crept into the administration as well as considerable confusion as to jurisdiction. As an illustration of the latter it may be mentioned that Captain Durand, who succeeded Major Broadfoote in 1844, was removed two years later for certain high-handed acts which made it impossible for his senior local officers to work with him. On one occasion he handed over an officer in civil employ to the military authorities to be tried by court-martial for acts committed in his civil capacity as officer in charge of the local jail. In 1850 the treasury was found to be deficient by Rs. 13,000 and Captain Impey, who was then in charge of the district, disappeared into Burmese territory.

In 1862 Tenasserim was joined to Pegu and Arakan as part of the province of British Burma, and the history of its administration becomes incorporated in that of the province. In 1866 Pagat, Thatôn and Martaban townships were added to the Amherst district, which thus comprised eleven townships, each divided into revenue circles. In 1895 the northern boundary of the district was again changed on the formation of the Thatôn district and was fixed as at present.

The resident head of the district is the Deputy Commissioner, as elsewhere in Burma. His headquarters are in

Moulmein, as also are those of the Commissioner of the Tenasserim division, of which the district forms part.

Subdivisions.

The district is divided for administrative purposes into three subdivisions, *viz.* Moulmein, Kawkareik and Amherst, these places being the headquarters of the respective subdivisional officers. Before the formation of the Thatôn district there was another, known as the Martban subdivision.

Townships.

There are at present eight townships in the district. Of these, Moulmein, Chaungzon and Kyaikmaraw form the Moulmein subdivision, Kawkareik and Kya-in, the last-named dating only from 1911, form the Kawkareik subdivision, and Mudon, Kyaikkami and Ye form the Amherst subdivision. The present designations of these townships date from 1901. Previously the Kawkareik township was known as the Haungtharaw township, the Kyaikmaraw as the Ataran, the Chaungzon as the Bilugyun, the Mudon as the Zaya, and Kyaikkami as the Wagaru. Each township is in charge of a *Myoôk*. The district is thus administered by a Deputy Commissioner invested with general, revenue and judicial powers, assisted by three subdivisional officers and eight township officers, all invested with similar, but inferior, powers. There is also a District and Sessions Judge who is invested with full powers for trying all criminal and civil cases and appellate powers over subordinate courts. Subordinate to the District Judge are Subdivisional and Township Judges for the trial of civil cases.

Judicial Administration—Civil.

Before 1826 the *Myowun* of Martaban and his subordinates exercised civil judicial powers. After the annexation the Commissioner became the principal civil judge. His assistant in Moulmein had power to try suits up to Rs. 500 in value, and the Master Attendant, the equivalent of the modern Port Officer, up to Rs. 200. The administration of civil justice would appear to have been in a somewhat chaotic state. Burmese law, modified according to British notions of equity and justice, was followed, except in cases between British litigants, when English law prevailed, but there were no codes or pundits, and a Burmese law officer had to be employed to expound the law of the land to the judges. Judicial procedure was simple. A suitor applied to the clerk at the Court, stating his claim and asking for a summons. A short abstract of the plaint, defence and evidence was recorded at the hearing, except in petty cases, when only the plaint and the decision were written down. There were no pleaders. Mr. Blundell in

1840 wrote :—" The whole proceedings are carried on *viva voce* before the Judge with no delay other than may be necessary for bringing forward evidence, and execution of decree follows as a matter of course. The expenses incurred are too insignificant to detail, seldom exceeding four or five rupees. " He deprecated any sweeping reform, possibly because of the impossibility of dealing with the volume of business by any more elaborate method. In one year 4,888 original civil suits were disposed of, of which 4,159 were dealt with by subordinate Burmese judicial officers. However, in 1841 pleaders were introduced, but as their fees were not included in costs, cases were frequently compounded for less than the value of the claim as a means of evading the payment of the fees.

In 1854 an Act for the Administration of Civil and Criminal Justice was passed, which put the law of Burma on a definite footing and systematised the administration, vesting the supreme control in the Sudr Adaulat in Calcutta. In 1864 a Recorder's Court was established in Moulmein. By Act XVII of 1875 the system was again revised, the Judicial Commissioner in Rangoon being invested with the powers of a High Court in relation to all courts in British Burma, and having subordinate to him the courts of the Commissioner, Deputy Commissioner, Assistant and Extra Assistant Commissioners. The Recorder's Court became the Court of the Judge of Moulmein. Prior to 1922 the district fell within the jurisdiction of the Divisional and Sessions Judge of the Tenasserim division, whose appellate jurisdiction was subordinate to the Chief Court of Lower Burma. In December 1922 the Divisional Courts were abolished and the District Judge's Court became the chief local Civil judicial authority. The civil courts are now of three grades subordinate to the High Court at Rangoon. The District Judge's Court has jurisdiction to hear and determine any suit or original proceeding whatever and has appellate jurisdiction over decrees and orders of the subdivisional and Township Courts. The Subdivisional Courts have jurisdiction to hear and determine any suit or original proceeding of a value not exceeding Rs. 5,000. A single judge sitting at Moulmein presides over the Subdivisional Courts of Moulmein and Amherst. The Subdivisional Officer, Kawkareik is *ex-officio* judge of the Subdivisional Court of Kawkareik. Township Courts have jurisdiction to hear and determine suits and original proceedings of a value not exceeding Rs. 1,000. A single judge sitting at Moulmein presides over the Township Courts of Mudon Chaungzon, Kyaikmaraw and Moulmein. The Township Courts of Amherst, Ye, Kawkareik and Kya-in are presided

over by the Township Officers who are *ex-officio* judges of these courts and sit at their respective headquarters. The Township Courts of Mudon, Chaungzon, Kyaikmaraw and Moulmein exercise the jurisdiction of a Court of Small Causes in respect of suits up to Rs. 100 in value. There is also a Court of Small Causes in Moulmein which tries suits arising within the limits of the Moulmein Municipality up to Rs. 500 in value. The Assistant Judge who presides over this court is also Additional District Judge and disposes of the such cases or classes of cases as are transferred to him for disposal by the District Judge.

The following table shows the average number of cases per annum in each grade of Court and the average value of each case for the years 1911 to 1931.

Court.	No. of Cases.	Average Value.
		Rs.
District Court ...	110	8,192
Court of Small Causes	736	111
Subdivisional Courts	97	1,747
Township Courts ...	1,083	164

This volume of litigation gives employment to a bar of considerable size. There are 101 licensed legal practitioners in the district, of whom nine are barristers-at-law, four Advocates of the High Court, twenty-five Higher Grade Pleaders and sixty-three Lower Grade Pleaders. This represents an increase of 66 legal practitioners in the last twenty years. The number of cases has not however greatly increased.

Registration.

The Deputy Commissioner is the Registrar, his office being amalgamated for certain purposes with that of the Treasury Officer, Moulmein, who is a Sub-Registrar. There is also a government pensioner who acts as a Sub-Registrar in Moulmein. The Subdivisional Officers of Kawkareik and Amherst and the Township Officers of Kawkareik, Kyaikmaraw, Mudon, Ye and Kya-in are also Sub-Registrars and there is a government pensioner who acts as Sub-Registrar at Chaungzon. The number of registrations made annually has increased in the last twenty years; in 1911 there were 1,729 registrations of immoveable property and 333 of moveable property, whereas the figures for 1931 are 2,711 and 441 respectively.

Criminal Justice.

In Burmese times criminal justice was administered by the Martaban *Myowun* and his subordinates. After the annexation the highest criminal court was that of the Commissioner, who could pass death sentences. His assistants wer. also

magistrates, with various powers. When the supreme control was vested in the Sudr Adaulat in Calcutta, all sentences of more than fourteen years' imprisonment required the confirmation of that court. By the Act of 1854 the criminal powers of the Commissioner were definitely limited to fourteen years' imprisonment, the Sudr Adaulat dealing with cases requiring higher punishment. Act XVII of 1875 made charges on the criminal side similar to those effected on the civil side, the Judicial Commissioner in Rangoon becoming the supreme court. Under the present system the senior criminal court in the district is that of the Sessions Judge who is the same person as the District Judge. The Court of Sessions has full power to try all criminal regular cases and to inflict any punishment permitted by law, but has no magisterial functions. The Court has appellate revisionary jurisdiction over acts of most inferior criminal courts. On the original side the Court is assisted by a jury. There is an Additional Sessions Judge who tries such cases as are transferred to him by the Sessions Judge. Superior appellate and revisionary jurisdiction is exercised by the High Court of Rangoon. The Deputy Commissioner as District Magistrate is the senior magistrate in the district and exercises all magisterial functions including appellate and revisionary powers over the acts of certain subordinate courts. In actual practice the District Magistrate tries but few regular cases, his principal functions being the hearing of miscellaneous cases and the supervision by revision or otherwise of the work of the subordinate magistrates. The District Magistrate has power to try all cases not punishable by death and may inflict punishment up to seven years imprisonment. The Subdivisional Officers and Township Officers are Subdivisional Magistrates and Township Magistrates within their respective jurisdictions. There is also a Headquarters Magistrate and several Additional Magistrates in Moulmein and some Additional Magistrates in Subdivisional and Township headquarters. These magistrates exercise powers according to the grade of the magistracy to which they belong. There is a bench of Honorary Magistrates in Moulmein and village headmen and committees exercise certain petty judicial powers.

Crime.

Despite various expedients for policing the new district dacoity was very prevalent in the years immediately succeeding the annexation. The proximity of the Burmese frontier made it extremely difficult to cope with, as gangs from Burmese territory carried on organized operations in spite of the efforts of a flotilla on the river and the local river police.

In 1851 there was a daring dacoity in the very middle of Moulmein town. In 1857 a rebellion broke out in Martaban, but did not spread to this district, being promptly suppressed by co-operation between the authorities of the two districts. The chief difficulty of the police in dealing with dacoity was the antagonism or apathy of the people in general. In 1870 the leader of a gang in the district actually offered a reward of Rs. 600 for the head of the Inspector who was engaged in hunting him down, and who eventually shot him after a sharp fight. Dacoity, however, was gradually suppressed in course of time, but the Taungthus and Shans on the Siamese border continued to give trouble in the matter of elephant and cattle thefts, which were much facilitated by the proximity of the frontier.

The commonest form of serious crime in the district has always been, and still is, cattle-theft. In 1931 there were 103 cases of cattle-theft, 73 robberies and 27 dacoities. Excise and opium cases seem to have decreased during the last twenty years, for in 1931 there were 96 excise and 22 opium cases, whereas in 1911 the number of convicted cases alone was 312 and 52 respectively. Forest offences, which numbered 160 in 1931, are common owing to the large area of reserved forest in the district.

Police.

At the annexation the policing of Moulmein was entrusted to the Military authorities, but in 1830 it was handed over, with the exception of that of the Cantonment, to the Civil power, the Master Attendant being at first police Magistrate before the appointment of a special assistant to the post. The town was patrolled by night watchmen paid by voluntary subscription. In the district the village headman was the local policeman. With increased activity by the docoits operating from Burmese territory came the necessity for supplementing these primitive arrangements. In 1838 a corps of Môns, the Burman's hereditary enemies, was raised to act as sort of military police, and in 1841 the policing of the town was handed over to sixteen street *thugyis*. When Major Broadfoote arrived he made severe criticisms on the police arrangements, and proceeded to reform them, absorbing the Môns into the general police force. On the river he posted two gun boats, and two rowing boats, and also created police posts along the river bank. In 1846 a fixed assessment was substituted for the voluntary payment for night watch. In 1847 the local corps of police was abolished and replaced by Madras Infantry. The town police was composed of Madrassis and Chittagonians and was worse than useless. Act V of 1861 introduced the police force in substantially its modern

form. The police magistrate, whose functions had been a kind of blend of the functions of the modern subdivisional magistrate and those of the District Superintendent of Police, was superseded by a superintendent with assistant superintendents under him and a force composed of inspectors, sergeants, head constables and constables, the whole subordinate to an Inspector-General in Rangoon.

The present police administration is in charge of a District Superintendent, assisted by two Subdivisional Police Officers, at Moulmein and Kawkareik, a Headquarters Assistant and two European Sergeants. The force consists of seven inspectors, 58 sub-inspectors, 68 head constables and station writers and 433 constables.

The Military Police force, which forms part of the Rangoon Battalion, consists of one subedar, one jemadar, 26 non-commissioned officers and 127 sepoys. Particulars of the distribution of both civil and military police over the district will be found in Volume B.

Jails.

It was decided in 1831 to make the Tenasserim provinces a penal settlement, to the jails of which Indian convicts could be transported. Moulmein jail was chiefly used for this purpose, and whole ship-loads of thugs were transported there. Local convicts were sent to a jail at Amherst. The Moulmein jail was simply a collection of barracks inside four walls, guarded by jail peons by day and a military guard by night. From 1834 onwards the convicts were largely employed on extramural labour, especially on the roads, and were also hired out to private individuals as workmen and servants, until this practice was stopped by Major Broadfoote in 1844 as the result of abuses and the frequency of escapes. In the latter year the control of the jail was transferred from the senior assistant to the police magistrate. No distinction was made between European and native convicts, though in practice the former were allowed more freedom. Until 1851 lunatics were confined in the jail for want of anywhere else to put them. A new jail was built at some time between 1840 and 1850, consisting of double-storied brick buildings with wooden floors and tiled roofs. This was what is now known as "the old jail." In 1862 the system of convict warders was introduced, and in 1864 the existing Jail Department was organised and placed under an Inspector-General.

The present Central Jail in Moulmein is a new structure, opened towards the end of 1908. The Superintendent is the Civil Surgeon. This jail receives convicts from the Thatôn, Salween and Amherst districts, and there is a

special cell section to which refactory convicts from all over the province are sent. The inmates of the jail are employed on the usual forms of jail labour, the most important being carpentry, weaving and cane work. The manufactured articles are exhibited for sale in the jail sale room, situated just outside the entrance to the jail. The average daily population of prisoners in 1931 was 813 of whom 14 were women. The average net cost per annum of a prisoner was Rs. 395-5-0 in 1931.

Public Works—Public Works Department.

In respect of public works the district forms part of the Amherst Division of the Pegu Circle. It is in charge of an Executive Engineer, assisted by two subdivisional officers, at Moulmein and Kawkareik. The department has the care of roads maintained out of provincial funds, the chief of which have been already mentioned in Chapter VII. Apart from these it is mainly concerned with the maintenance of bungalows, court-houses, schools and other public buildings.

The District Cess Fund.

The District Cess Fund is derived chiefly from a levy of 10 per cent on the land revenue. Most of it is administered by the District Council but in respect of Ye and Kya-in townships and part of Kawkareik Township, which are classed as backward tracts, some is administered by the Deputy Commissioner. For the four years 1928-29 to 1931-32, the average total income was Rs. 3,12,777 for the District Council and Rs. 58,280 for the Deputy Commissioner. The average expenditure for these years by the District Council was Rs. 29,543 on Medical Services and Public Health, Rs. 98,377 on Civil Works and Rs. 1,67,539 on Education. The corresponding expenditure by the Deputy Commissioner for the backward tracts was Rs. 9,191 on Medical services and Public Health, Rs. 6,741 on Civil Works and Rs. 28,558 on Education.

Light-houses.

The coast was first lighted in 1850, when a light was slung on a strong teak mast at Amherst Point. The first of the two existing light-houses was erected in 1865 on Double Island at a cost of nearly a lakh of rupees, the whole of which was, despite remonstrance, debited to the local port fund. This light-house is built of rubble granite and Singapore brick, and is situated about twelve miles south of Amherst and seven from the cost in 15°53′ N. and 97°35′ E. The building is 75 feet high, and the centre of the lantern is 164 feet above high water. It shows a dioptric fixed white light visible for nineteen miles.

In 1903 the low power light erected on Amherst Point was superseded by the erection of a masonry light-house on Green Island, near the point. This light is a third order dioptric light, giving alternate flashes and eclipses, and making a complete revolution in two minutes. It is visible for seventeen miles.

CHAPTER X.

Revenue Administration.

In Burmese Times; British Administration; Land Revenue; Early Settlements; Settlement of 1867-68; Summary Enhancement of 1880; Subsequent Settlements; Revision Settlements; Capitation Tax; Fisheries; Miscellaneous Land Revenue; General Review; Customs; Excise; Stamps; Salt; Income-tax; Total Revenue.

In Burmese Times.

Prior to the annexation the revenue administration of the district was in the hands of the *Myowun* of Martaban, as far as his authority extended, *i.e.*, about twenty miles south of Moulmein. The Governorship was divided into circles, and the circles into villages in charge of headmen, upon whom fell the duty of collecting taxes. The principal tax was one upon families, assessed in proportion to the reputed wealth of the assessee, and the only direct land tax was a produce tax of nominally ten per cent of the gross produce. There were also various other imposts, such as transit dues, fees on the sale of cattle, etc. The incidence of taxation varied in accordance with the demands made upon the *Myowun* by the Court, and with the rapacity of the *Myowun* himself and his underlings, for, although the amount each headman had to collect was fixed, there was nothing to prevent him collecting more and following the example of both King and *Myowun* by purely arbitrary exactions.

British Administration; Land Revenue.

For more than a year after the annexation no revenue was collected beyond that derived from opium, arrack and gambling farms. The first produce tax was imposed in 1827, and consisted of a grain tax fixed at one-fifth of the gross produce calculated on a rough estimate of the outturn, based on the number of plough animals and quantity of labour employed. No reason for fixing the rate at one-fifth instead of at one-tenth as in Burmese times has been discovered. The tax was collected by *thugyis*, who were at first paid a fixed salary of from Rs. 10 to Rs. 15 a month, but in 1829 this was changed for a commission on the amount collected. Collection in cash at the current price was also soon substituted for collection in kind. The

great fault of the system was that the cultivator could not tell from year to year what would be demanded of him as revenue, inasmuch as the estimate of outturn and calculation of the tax was made on each year's crop separately.

Early Settlements.

To remedy this defect a three-year settlement was entered into in 1831, the calculation being made on the same lines as before, but the rate being fixed for the period of the settlement. At its expiry a seven-year settlement was arranged on similar lines, but this was a failure, the conversion price calculated on prices obtaining during the previous settlement proving too high when the price of paddy dropped again, as it did in the early years of the seven-year settlement. The hardship thus inflicted on the cultivators was further enhanced in 1836 by an epidemic of disease which destroyed 12,000 buffaloes. The result was a steady decrease in the revenue. Up to the expiry of the seven-year settlement the tax was assessed on produce. In 1842 this system was superseded by an assessment per acre introduced by Major Broadfoote, who was then Commissioner, and who was in consequence long remembered by the people as the " Ekamingyi. " The rates fixed varied from Rs. 2 to Rs. 5 per acre, but despite subsequent enhancements the revenue continued to decrease, although the settlement system had been abandoned and the system of yearly rates reverted to. To remedy this unsatisfactory state of affairs Captain (afterwards Sir Arthur) Phayre was deputed in 1847 to report on the revenue of the district. He introduced the *kwin* as the unit of assessment and also a system of measurement of the land and assessment of rates on the principle of soil classification. A tax on *taungya* and miscellaneous cultivation at a rate of Re. 1 and Rs. 2 per acre respectively was also introduced. A two anna fallow rate was introduced in 1863. The system evolved by Captain Phayre, although an improvement on its predecessors, was not altogether successful, and rates on all kinds of land were continually changing. In 1867 Colonel Duff reported that the chief causes of the persistent stagnation of the revenue, which was then but little more than it had been twenty-three years before, were constant alteration of rates and general over-assessment. Lack of population, the inadequacy of the police arrangements of the district, and the focussing of all eyes upon the valuable timber trade must also, however, be held largely responsible for the unsatisfactory condition of agriculture.

Settlement of 1867-68.

In 1867-68 Captain Horace Browne carried out a settlement of the district, in which he endeavoured to introduce a system of

leases. The advantages of this system were that the sum assessed was fixed for the period of the lease, and that there was no annual measurement or assessment of extensions of cultivation. The attempt to get the people to take out leases, however, met with but very partial success. The last of them had expired by March 31st, 1869. As regards assessment, Captain Browne's proposals were based on a careful inspection of *kwins*, information obtained from the people themselves, and consideration of the proximity of the market. The object of this settlement was not enhancement of rates but encouragement of cultivation, and the general result was a reduction of the assessments, which were now fixed at from Re. 1 to Rs. 2-4, except in a few cases where a rate of Rs. 2-8 was imposed.

Summary Enhancement of 1880.

In 1880 it was felt that the rise in the price of paddy, the improvement of communications, and the increase of cultivation since the last settlement entitled Government to a larger share of revenue. Deputy Commissioners were therefore instructed to draw up proposals for their districts, and as a result the rates on paddy land in the Amherst district were enhanced by from two to four annas, the maximum, however, remaining at Rs. 2-8. An exception was made in the case of Ye township on account of its inaccessibility, which prevented it from profiting by the general rise in price, and of the comparatively small increase of cultivation since 1868. The inquiry preliminary to this enhancement can hardly be described as a settlement, and was of a more or less summary nature. Although by no means unjustified, the enhancement was somewhat inequitable in its incidence owing to the lack of detailed investigation.

Subsequent Settlements, 1891-92.

In 1891-92 an area of 366 square miles situated in Bilugyun and the coast lands south of Moulmein was settled by Mr. A. P. Pennel, and rates of from Rs. 2-12 to 12 annas were imposed on paddy land, together with rates of from Rs. 6 to Rs. 2-8 on gardens, Rs. 4 on *dhani* and 4 annas per tree on solitary fruit trees. This settlement was for the term of fifteen years. The principle, which has since been adopted, of assessing each individual garden on its merits, *i.e.*, fixing classes for gardens and assigning each one to a class, was first introduced in this settlement, garden cultivation being more important in this district than in any previously settled.

1892—94 In 1892—94 the northern part of Bilugyun, which had not been included in the area covered by Mr. Pennel, the Kado and Kawtun circles on the right bank of the Gyaing and seventeen circles on the left bank of the Gyaing and the lower reaches of the Ataran, an area of 273 square miles in all, were settled by Mr. A. Gaitskell. The rates imposed were from Rs. 3 to Re. 1 on paddy land, Rs. 4 on *dhani*, Rs. 3 on sugarcane, Rs. 2-8 on miscellaneous crops, from Rs. 6 to Rs. 2-8 on gardens, and 4 annas per tree on solitary fruit trees.

1894—95 In 1894-95 an area of 245 square miles situated in Wagaru and Ye, *i.e.*, the coast lands south of those already settled in 1891-92, except the Hangan circle, was settled by Mr. Gaitskell. The resulting paddy land rates varied from Rs. 1-10 to 12 annas, and those on gardens from Rs. 5 to Rs. 1-12. The rates on *dhani* and *kaingkyan* sugarcane were Rs. 3, on miscellaneous crops Rs. 2-8, on Madras sugarcane Rs. 5, and on solitary fruit trees 4 annas per tree.

1895—96 In the next two years Mr. Gaitskell settled a further area of about 403 square miles in the plains of the Haungtharaw Gyaing and Ataran, together with the Hangan circle of Ye township. The rates imposed on paddy land were from Rs. 1-12 to 12 annas, on gardens from Rs. 5 to Rs. 1-8, on *dhani* Rs. 3, on sugarcane Rs. 2 and Rs. 1-8, on miscellaneous crops Rs. 3 to Rs. 1-8, and on solitary fruit trees 4 annas per tree.

Revision Settlements, 1906—07. In 1906-7 a revision settlement of 467 square miles in the Chaungzon, Mudon, Kyaikkami and Moulmein townships was carried out by Mr. G. P. Andrew. The area included that covered by the original settlements of 1891—94, and certain lands near Moulmein and Amherst towns included in the settlements of 1894—96. The resulting rates on paddy land varied from Rs. 4-10 to 4 annas, on gardens from Rs. 12 to Rs. 2-8, on *dhani* from Rs. 5 to Rs. 4, and on miscellaneous cultivation from Rs. 3 to Rs. 2-8; solitary fruit trees continued to be assessed at 4 annas per tree.

1910—12 In 1910—12 revision settlement operations were conducted by Mr. P. E. Jamieson over an area of 1,279 square miles, the whole of which had been originally settled between 1892 and 1896, except 130 square miles which were now first brought under settlement. The bulk of the area covered by this revision lies in the Ye, Kawkareik, Kyaikmaraw

and Kya-in townships. The rates imposed were, on paddy land Rs. 4-12 to 12 annas, on gardens from Rs. 6 to Rs. 1-8, on *dhani* Rs. 3, on sugarcane from Rs. 4 to Rs. 3, on miscellaneous crops Rs. 3, on tree cotton Re. 1, on *taungya* Re. 1, and on solitary fruit trees 4 annas per tree.

In 1930-33 revision settlement operations were conducted by Mr. B. O. Binns over the whole area previously settled by Mr. Jamieson and Mr. Andrew and a small additional area mainly in the Kya-in and Ye Townships. The total area settled amounted to 1,817 square miles. At the time of writing the Settlement Officer's proposals have not been submitted to Government but it is expected that his proposals will include rates on paddy land of from Rs. 5 to 12 annas and on garden land of from Rs. 12 to Rs. 1-8. The total land revenue demand in 1931-32 was Rs. 12,64,522. In 1932-33 the Local Government remitted one-eighth of the revenue and the demand was Rs. 11,24,911.

Capitation-tax.

The first capitation-tax was levied in 1826, on Karens and Taungthus only, these being wandering peoples from whom it would have been very difficult to collect land revenue. It was assessed by *thugyis* and assessors and amounted to as much as Rs. 15 a family, though subsequently reduced to Rs. 8. In 1834 a tax of Re. 1 per head was imposed on Shan traders. In 1841 capitation-tax was abolished, but was reintroduced in 1843 at a rate of Rs. 5 per head on married, and Rs. 2-8 on unmarried men, except in the case of fishermen and cultivators, the latter paying Rs. 2. In 1848 the tax which had till then been imposed on all fisheries, except those disposed of by public auction for stated periods, was abolished, and capitation-tax came to be regarded as a commutation of it and was called Fish Tax. It would seem that the small cultivator generally supplemented agriculture by fishing, for the assessment was made by *kwins*, at Rs. 5 for those holding less than one acre, Rs. 2 for those holding less than five acres and Re. 1 for larger land-holders. It was at one time proposed to levy it only on the coast and tidal creeks and estuaries. The commutation idea, however, died out, and the tax became known as House Tax, and in 1863-64 an all-round rate of Rs. 5 and Rs. 2-8 for married and unmarried respectively was introduced, with a special rate of Rs. 2 and Re. 1 for hill tribes. The present normal rates are still Rs. 5 and Rs. 2-8. The total collections of capitation-tax have of course been steadily rising with the growth of the population. In 1895-96 the collection for the district amounted to Rs. 1,79,167 from 43,056 assessees. In 1909-10 the collection was Rs. 2,58,470 from

62,836 assessees, and in 1930-31 it was Rs. 3,34,702 from 89,063 asseseses.

Fisheries.

The fishery revenue of the district are not of much importance. Most of the revenue is derived from net licences. The fishery revenue for the year 1932-33 was Rs. 25,824 from net licences and Rs. 2,980 from other sources.

Miscellaneous Land Revenue.

Other sources of land revenue are receipts under the Village Act, survey fees and royalties and fees on minerals which include duties on clay extraction and prospecting licences. The total average annual receipts from these sources during the five years 1926-27 to 1930-31 were Rs. 38,646 and the receipts during 1932-33 were Rs. 19,786.

General Review.

The poverty of the district at the time of the annexation has been already referred to, as well as the fact that it was the valuable teak forests which caused the Government of India to decide to retain possession of the country. Thus in its early years the land revenue of the district was insignificant. Its failure to increase and the causes were pointed out by Colonel Duff in his report of 1867, which led to the settlement by Captain Horace Browne in 1868 and the imposition of rates calculated to foster agriculture rather than to raise the maximum of revenue. The success of these measures may be judged from the fact that, whereas in 1867 the land revenue of the district was only Rs. 3,36,080, it had risen by 1875 to Rs. 4,62,520. In 1894-95, the last year during which the boundaries of the district remained the same as in 1867, *i.e.*, including the country between the Salween and the Bilin river, the total land revenue amounted to Rs. 12,89,674. No comparison is possible with that of the following years, as the formation of the Thatôn district reduced the assessed area from 520,218 to 279,594 acres and the capitation assessees from 83,013 to 43,056. From 1895-96 onwards, however, the land revenue has shown a steady increase. In that year land revenue proper amounted to Rs. 5,18,041, capitation-tax to Rs. 1,79,167 and the total to Rs. 7,17,778. In 1910-11 the corresponding amounts were Rs. 10,03,793, Rs. 2,62,985 and Rs. 12,93,494. In 1920-21 the corresponding amounts were Rs. 10,26,612, Rs. 2,89,740 and Rs. 13,47,614. In 1930-31 they were Rs. 11,35,010, Rs. 3,34,702 and Rs. 15,30,354. In 1931-32 the figures were Rs. 11,16,020, Rs. 2,82,525 and Rs. 14,60,507 and in 1932-33 Rs. 10,32,256, Rs. 2,85,179 and Rs. 13,66,025. The last three years show the effect of the slump in commodity prices. The actual peak of Land Revenue collections was in 1927-28, when the corresponding

figures were Rs. 12,01,976, Rs. 3,53,008, and Rs. 16,42,647, but the years 1928-29 and 1929-30 show only a small decrease.

Customs.

Customs were first levied in 1855, the rates being similar to those levied at Calcutta with one or two minor exceptions. The Master Attendant was the Collector. The total duty realised in the first year, 1855-56, was Rs. 73,864, of which Rs. 58,437 was on imports. Ten years later the total had risen to Rs. 1,03,377, while in 1875-76 it was Rs. 4,72,251, of which only Rs. 80,010 was on imports. The difference in the proportion of duty realised on imports and exports respectively in 1855-56 and in 1875-76 is due to the introduction in 1867 of an export duty of 8 annas per maund on rice and to the subsequent development of Moulmein as a considerable rice-exporting port. The total customs duty collected in 1910-11 was Rs. 8,20,640, of which Rs. 1,14,717 was on imports. In 1931-32 the net earnings of the Port of Moulmein were Rs. 1,15,570 from imports and Rs. 5,16,865 from exports. The Port Officer is the Collector of Customs. The only export duty is that on rice already referred to. The import duties are those in force generally throughout the whole of India.

Excise.

After Customs, Excise is the most prolific source of revenue, other than those grouped together under the head of Land Revenue, and supplies between one-fifth and one-sixth of the total for the district. It is also one of the oldest sources, arrack and opium having been taxed from the beginning of British rule. Excise farms were leased, and in the early days excise included gambling farms. In 1827 a gambling farm was let out for Rs. 300, and by 1829 the revenue from this source had risen to over Rs. 16,000. It was then abolished as the result of representations by the elders of the Burman community pointing out the disastrous effect of the encouragement of gambling upon the morality of the people. The retail licence of opium was sold by auction, till in 1862 the system of granting licences at Rs. 16 to an unlimited number of vendors was introduced. In the next year, however, a reversion was made to the previous system.

At the present day liquor licences are sold by auction, as elsewhere in Burma, and opium vendors are appointed at a fixed fee. There were in 1930-31 116 liquor licences in the district.

There are also bonded warehouses under the contract distillery system at Kawkareik, Amherst and Ye. There

are four opium shops at Moulmein Chaungzon, Mudon and Kawkareik.

Since the beginning of the present century the excise revenue has remained fairly constant at between about 4½ and 6 lakhs. Of these between 2 and 3 lakhs are derived from liquor licence fees and between 1 and 2 lakhs from sale of opium, the bulk of the remainder being excise and customs duty. The excise revenue for the year 1930-31 was Rs. 3,32,607 from excise and Rs. 1,72,862 from opium.

Stamps.

The revenue derived from stamps shows over long periods a tendency to increase steadily in proportion to the increase in the work of the Courts and in the volume of business transacted in the district. It is, however, subject to fluctuations as the result of abnormal activity or lethargy in the business world. Thus, the highest level ever attained by the revenue from non-judicial stamps was in the years 1902-03, 1903-04, and 1904-05, *i.e.*, in the years of the land boom already referred to in Chapter IV. On the other hand, the highest value recorded for revenue from judicial stamps was in the years 1905-06, 1906-07 and 1907-08, *i.e.*, immediately after the land boom. The first phenomenon may be attributed to the abnormal volume of business in land transacted during the boom, and the second to the abnormal amount of litigation which arose out of it. The increase in the work of the Civil Courts has been already mentioned in Chapter IX, and this is reflected in the returns of the revenue derived from stamps. The total stamp revenue for the three years 1898-99 to 1900-01 amounted to Rs. 3,46,839, and that for the years 1908-09 to 1910-11 to Rs. 4,76,574. In 1930-31 the stamp revenue was Rs. 1,87,031.

Salt.

Prior to 1905 the salt revenue of the district was levied in the form of a composition duty on the vessels used in the manufacture. This system dates from 1827, when the rates first introduced were one rupee for each iron pot and four annas for each earthen vessel. The proceeds, however, were but small, the total salt revenue from the Tenasserim provinces in 1850 amounting to only Rs. 2,000. By 1893 this had risen to between Rs. 50,000 and Rs. 60,000 for the Amherst district alone. With effect from the begining of 1905 a direct duty on the actual quantity of salt manufactured and sold was substituted for the previous system, the immediate result of the change being a loss of over Rs. 12,000, which was attributed to lack of effective supervision. The direct duty eventually resulted, however, in a large increase in the salt revenue of the district, the average total for the four years 1907-08 to 1910-11 amounting to Rs. 1,16,941. In recent

years the salt industry has enjoyed more prosperity. The average for the five years 1927-28 to 1931-32 was Rs. 4,03,476. Minor fluctuations in the revenue under this head are to be attributed to the vicissitudes of the different seasons. Heavy rainfall in March or early April at once puts a stop to brine concentration and causes a diminution in the outturn for the whole year, whereas delay in the breaking of the rains permits of brine concentration being carried on longer than usual and results in an increase in the year's outturn. Under the present system of salt administration the manufacturer is required to put the manufactured salt through a grating into a specially constructed godown, the key of which is kept by a Government Inspector or Assistant Inspector. The salt is withdrawn for sale as required, the amount is weighed by the Factory Officer and the duty is recovered on each withdrawal. The salt revenue department now assesses duty on a system of calculations based on the quantity of brine used and the capacity for manufacture of each factory. This is bound to be equitable towards the manufacturer and effective in preventing illicit production. The rate of duty in force in the district in 1932 was one rupee ten annas a maund. An account of the method of manufacture is given in Chapter V.

Income-tax.

The income-tax collections of the district show a considerable increase of recent years. For the five years 1895-96 to 1899-1900 the average annual collection was Rs. 39,373, and for the corresponding period 1905-06 to 1909-10 it amounted to Rs. 54,255, while the average for the years 1927-28 to 1931-32 was Rs. 3,44,936. There is one Income Tax Officer and one Assistant Income Tax Officer in the district.

Total Revenue.

The following table showing the total revenue of the district at different stages of its history derives additional interest from the fact that for some years after the annexation the newly acquired Tenasserim provinces were hardly considered worth retaining:—

Year.	1855-56.	1875-76.	1895-96	1905-06.	1910-11.
	Rs.	Rs.	Rs.	Rs.	Rs.
Total revenue.	4,49,360	16,87,413	19,96,957	25,75,119	28,80,694

In 1930-31 the total revenue amounted to Rs. 31,23,952, exclusive of Forest Revenue.

CHAPTER XI.

LOCAL SELF-GOVERNMENT.

Moulmein Municipality; Kawkareik Town Committee; District Council; Village Committees; Circle Boards.

The bodies entrusted with the responsibilities of Local Government are, as elsewhere in Burma, the Circle Boards, the District Council, Municipal Committees and Town Fund and Village Committees. There is only one Municipality, Moulmein and one Town Fund Committee, that of Kawkareik, in the district.

Moulmein Municipality.

The Municipality dates from 1874, prior to which the town was administered by the Town Magistrate under the control of the Commissioner, the revenue being derived from the night-watch tax and other local sources and expended in paying for the police, maintaining the roads, and other necessary works. With the application of the Municipal Act to Moulmein the town was placed under a Municipal Committee of members, partly official and partly non-official, nominated by the Local Government, with the Town Magistrate as President. The revenue was derived from a Municipal tax, fees from numerous licences, fines and other sources similar to those at present in existence.

Although the Municipality shares with Rangoon and Toungoo the distinction of being the first set up in Burma, it early career by no means afforded a successful example of the application of the principle of Self-Government. Although the electoral system was in due course introduced, it was found necessary to suspend it at the beginning of 1907 on account of the condition into which Municipal affairs had been brought by the mismanagement of the Committee. The Deputy Commissioner of the district was the President, but even when unhampered by an elected committee his hands were too full to permit of his doing justice to Municipal affairs in the state in which they then were. Accordingly, about the middle of 1909 a whole-time President, Mr. J. D. Fraser, was appointed, who spent two years in reducing Municipal affairs to order. At the end of that time Mr. Fraser assumed charge of the district, and the Deputy Commissioner thus again became President of the Municipality. The electoral system was, not restored till 1921.

In recent years the standard of municipal administration has greatly improved under a succession of efficient presidents and the municipal administration of Moulmein now compares favourably with that of many of the towns of

Burma, although it must be admitted that in some directions there is still room for improvement.

The Municipal Committee consists of an elected president and vice-president, twenty-four elected members, the Port Officer nominated by the Local Government, and two co-opted members, the Civil Surgeon and the Executive Engineer.

The chief items of expenditure are Public Works, conservancy, hospitals and dispensaries, lighting and water supply, the two latter being special service funds. Seventy-two miles of road are maintained under circumstances of considerable difficulty owing to the copiousness of the rainfall. The conformation of the town renders conservancy also a very difficult task owing to the distances which have to be covered.

All but a small number of the houses receive Municipal service, and the staff necessary for adequately cleaning the streets entails considerable expense. The Municipal hospital and dispensary are dealt with in detail in Chapter XIII. From 1898 to 1927 the town was lit by gas supplied from gas works situated in the Strand Road. This has now been replaced by electricity supplied by a local company. Many of the private buildings are lit by electricity but it has not been generally installed in public buildings except the hospital as power is at present only regularly supplied between 4-30 p.m. and 6-30 a.m. The water-supply was constructed at a cost of 9½ lakhs, and has proved a great boon to the town, having put a stop to the cholera epidemics which used formerly to occur regularly. Cases which still occur are generally attributed to the drinking of river water by the river-side population. The water-supply comes from a reservoir four miles south of Moulmein at the foot of the Taungwaing hills, and is distributed by gravitation throughout the town through the medium of stand pipes. The present water rate is 5¾ per cent on rental value. Unfortunately the catchment area of the reservoir is insufficient for the needs of the town and there is still a serious water shortage in the months of March and April. Several of the principal residental areas receive no water at all and have to depend on wells or on water carried some distance from municipal hydrants. The municipality is at present engaged in sinking several tube-wells with which it is hoped to supplement the existing water supply and render it sufficient for the needs of the town. A volunteer fire brigade equipped from municipal funds is maintained, and owns two fire engines.

The income and expenditure of the Municipality for the year 1931-32 were Rs. 5,51,000 and Rs. 5,35,700 respectively.

Kawkareik Town Committee.

The Kawkareik Town Committee dates from 1884-85, but it was reconstituted in 1903. The Committee consists of an official President, (the Subdivisional Officer, Kawkareik), appointed by the Commissioner, Tenasserim Division, two nominated resident government officials, usually the Sub-Assistant Surgeon and the Subdivisional Officer, Public Works Department, one member for the Indian Community, one member for the Chinese Community and six members elected by wards. The Vice-President is elected by the Committee from among its members. The chief sources of income are house-tax, lighting-tax, scavenging-tax, wheel-tax, cart tolls, and fees and revenue from cattle markets, slaughter houses and pawn-shops and bazaar receipts. The incidence of taxation and income per head of population in 1931-32 was Rs. 2-1-8 and Rs. 3-5-9 respectively. The chief items of expenditure are public works, including expenditure on lighting, contributions towards the hospital and vernacular education, and sanitation. The average income and expenditure during the five years from 1928-29 to 1931-32 amounted to Rs. 24,795 and Rs. 25,458 respectively.

District Council.

The District Council, which has been functioning since 1923, consists of a Chairman, Vice-Chairman, and a committee of twenty representatives sent up from the eight circle boards. The Civil Surgeon, the Executive Engineer, and the Deputy Superintendent, Civil Veterinary Department, are co-opted as additional members of committee.

The District Council has taken over the functions formerly exercised by the Deputy Commissioner in respect of the District Cess Fund. It is responsible for the construction and the maintenance of the secondary roads in the area under its control and for various other minor public works. It is responsible, through the District Health Officer, for public health and sanitation outside the Municipalities and Towns. Vernacular education is managed by a School Board of about twelve elected from the District Council. Some account of the finances of the District Council has been given above in Chapter IX.

As noted above the Deputy Commissioner continues to perform the functions normally allotted to the District Council in certain backward areas.

The chief sources of income are land and house tax, taxes on animals and vehicles, conservancy, lighting and water rates, market and slaughter-houes fees, hackney carriage,

cart and lodging-house licence fees, and other minor sources. In most Municipalities bazaar rents and leases constitute an important item in the Municipal receipts. By the concession in 1846 of the privilege of establishing private bazaars, and the sale in 1848 of the Big Bazaar for Rs. 51,200, Moulmein Municipality has been deprived of this valuable source of income enjoyed by other towns. It has been estimated that the loss to the Municipality due to not owning any of the bazaars amounts to over Rs. 49,000, which has to be made up by extra direct taxation and by the imposition of unusually heavy lodging-house licence fees. This of itself is sufficient to account for the fact that the incidence of taxation is heavier than in towns of similar status elsewhere in the province.

Village Committees.

The village committees consist of members elected by the villagers subject to the approval of the Deputy Commissioner. The Village Headman presides over the meetings. The functions of the committee are to assist the headman in the performance of their general administrative duties. The committee has certain summary judicial powers and certain responsibilities as to village administration. These committees were instituted in 1926.

Circle Boards.

There are eight circle boards in the district. These are connected with elections to the District Council, and have some functions, notably in connection with primary education.

CHAPTER XII.

EDUCATION.

History; Literacy; Government System; Expenditure.

History.

Public education in the district may be said to have begun in 1833, when Government sanctioned an allotment of Rs. 500 a month for the education of the indigenous races of the Tenasserim provinces. In 1834 a school was opened under the Reverend Mr. Bennet of the American Baptist Mission, and within twelve months the original attendance of 26 pupils had increased to 104, of whom twelve were girls. The hopes based on this encouraging start were not, however, fulfilled, although Mr. Hough, who succeeded the Reverend Mr. Bennet, was a most capable and successful teacher. In 1845 Mr. Hough was not only Headmaster of the Moulmein Government School, but was also appointed Inspector of Schools for the Tenasserim provinces, another school having been established at Mergui. He devoted much time to the preparation of vernacular text-books, a work in which the American Baptist Missionaries, who had opened

a normal school of their own for Karens in Moulmein in 1843, were invited to co-operate. By 1854 the sum allotted to education had not increased beyond the original inadequate grant of Rs. 500 a month.

Primary education was, as elsewhere in Burma, in the hands of the monastic class, and the children of the indigenous races received an elementary education, comprising reading, writing, religious instructions, and sometimes arithmetic, in the *pongyi kyaung*. The very slow progress made by education in the early years of the British occupation was always attributed to the difficulty of influencing this old-established, conservative and very inadequate system of primary education. In 1854 Colonel Bogle, the Commissioner, stated that the attempt to influence the *pongyi kyaung* régime was hopeless, and that effort should be concentrated on endeavouring to attract boys to the secondary schools in Moulmein after leaving the *kyaung*. He considered Moulmein well suited to become an academic centre, by way of compensation for the commercial decline which he foretold would come upon the town as the result of the annexation of Pegu. His expectations have to some extent been realized, for Moulmein is certainly well equipped with schools of all grades. His pessimism on the subject of primary education has not, however, been justified by subsequent experience. In 1866 Sir Arthur Phayre successfully initiated the policy of making the education given in the *pongyi kyaung* the foundation of the whole educational system of the country. Grants-in-aid were made to *pongyis* who were willing to comply with very simple requirements, text-books were distributed to such as would receive them and teachers were sent round to assist, and thus influence, such as would admit them. This process of grafting Western culture on to the indigenous system of education met with a certain measure of success. By 1873 eighty-nine monastic schools in the district were being visited with the consent of the presiding *pongyis*, but it is worthy of remark that in Moulmein itself no fewer than fifty *pongyis* had refused to admit the examiner. In 1931 there were 26 recognized *pongyi kyaungs* with a total attendance of 3,344 pupils.

Literacy.

It is to the indigenous *pongyi kyaung* system that the province owes its large proportion of literates to the whole population. The standard of literacy in the Amherst district is fairly high, though not equal to that attained by some other districts, but the statistics are of course materially affected by the proportion of natives of India included in them. These immigrants hail from provinces with no indigenous system of popular education and their off-spring are not in a position

to take advantage of the opportunities afforded to the majority of the natives of this province. At the census of 1931 the proportion of literates to the total population of the district was 217 per thousand as compared with 181 per thousand in 1911 and 168 per thousand at the census of 1901.

Owing to the non-admission of females to the *pongyi kyaung* schools, the great majority of the literate population are males.

Government System.

The district forms part of the Tenasserim Education circle, which is in charge of an Inspector of Schools with head-quarters at Moulmein. There are four sub-circles each under a Deputy Inspector, and there is also a Sub-Inspector of Môn schools.

As already explained, the foundation of the educational system is the *pongyi kyaungs*. There are 26 *kyaungs* which have conformed to the rules of the Education Department and sought registration.

In addition to these there are 368 private monastic schools, receiving no aid from Government but admitting Government Inspectors from time to time. There are also 175 recognized lay schools and 31 private lay schools. The attendance at *Pongyi kyaungs* is 6,673 as against 16,249 at lay schools. The public monastic schools include four High schools and five secondary schools. There is a Karen High School at Kyondo, Kawkareik Township.

The number of public, *i.e.*, state-controlled or aided schools in the district in 1931 is shown in the following table:—

Vernacular.							English and Anglo-Vernacular.						
	Schools			Attendance.				Schools.			Attendance.		
—	High.	Secondary.	Primary.	High.	Secondary.	Primary.	—	High	Secondary.	Primary.	High.	Secondary.	Primary.
Lay	3	28	144	783	4316	11,260	English	4	1	...	1, 59	164	...
Monastic	4	8	14	905	1102	1,337	Anglo-Vernacular	7	7	1	2,256	998	56

The English High Schools are St. Patrick's School, which was established in 1842 by the Roman Catholic Mission, for boys, and St. Joseph's Convent, St. Matthew's and the American Baptist Mission Schools for girls. There are in all 1,359 pupils attending these four schools. Besides these there are at Moulmein five Anglo-Vernacular High

and three Anglo-Vernacular Middle Schools for boys and one Anglo-Vernacular High and one Middle School for girls. There are also two practising schools for training teachers.

St. Raphael's School for blind girls, at Moulmein, deserves special mention. It was the first institution of its kind in the province, and still does valuable work.

There is also one High School at Mudon with an average attendance of over 200 pupils.

There are two hundred and one vernacular schools in the district of which seven are High Schools. They are distributed by townships as follows:—

	Chaung-zon.	Mudon.	Kyaik-maraw	Kyaik-kami.	Kawka-reik.	Ye.	Kya-in.	Moulmein Town.
Burmese ...	27	18	11	13	8	2	2	28
Karen ...	3	..	6	1	15	2	14	..
Mohamedan ...	3	1	2	1	1	...	...	6
Tamil ...	...	...	...	...	...	...	...	4
Mon	3	10	6	...	...	14	...	...

As already mentioned, the old monastic system of primary education ignored the female portion of the population altogether, so that female education among the indigenous races is entirely of modern origin. Apart from the English and Anglo-Vernacular Schools mentioned above, the district possesses a large number of primary schools where both boys and girls attend. There are four vernacular schools for girls only with an average attendance of 104 pupils.

Expenditure.

The grant of Rs. 500 *per mensem* on which public education so long subsisted has expanded greatly in the course of time. The total expenditure on education in the year 1930-31 exceeded Rs. 9,00,000 of which about Rs. 5,00,000 was derived from provincial funds, about Rs. 1,00,000 from local funds and the balance from fees.

CHAPTER XIII.

PUBLIC HEALTH.

General Health; Malaria; Cholera; Plague; Small-pox; Vital Statistics; Sanitation; Hospitals; Leper Asylum; Ellen Mitchell Memorial Hospital.

General Health.

Despite its rainfall and the water-logged condition of large areas in the rainy season, Amherst district is on the whole a healthy one. As one of the first portions of British

Burma to be acquired it has doubtless shared the evil reputation which attached to the early province as the result of the ravages of disease among the troops engaged in the first Burmese war. This reputation, however, was not wholly deserved, and has been largely lived down by this time.

Malaria.

Notwithstanding the damp, the mosquitoes, and the similarity of the position of the Tenasserim province to that of Arakan, where malaria is ever present, most parts of the district are singularly free from malarial fever. A virulent form of fever is found, however, in the valley of the Thaungyin, which is anything but healthy in the rains, but this is a common feature in the vicinity of mountain ranges and occurs also in the valley at the foot of the Eastern slope of the Arakan Yomas. In rural areas "fever" is invariably given as the cause of the majority of deaths by disease, so that statistics under this head are notoriously unreliable and afford no means of estimating the prevalence of malaria.

Cholera.

Cholera has on many occasions appeared in the district as a terrible scourge. In 1842 an outbreak occurred in Moulmein which carried off three hundred persons within a fortnight. This epidemic spread from the Burmese kingdom where its ravages were appalling. In 1874 there was another outbreak, which in that, and the previous year, covered almost the whole of British Burma, and in which Moulmein again suffered severely. There was another bad epidemic in 1877. Smaller outbreaks used to occur annually in Moulmein until the opening of the water-works, which have struck at the root of the evil by providing the people with a pure water-supply.

In 1927, however, there was a serious outbreak of cholera in the district, resulting in 115 deaths. In the two subsequent years there was a reappearance of the epidemic and deaths numbered 135 and 120 respectively.

Plague.

Plague is recurrent in Moulmein, but there has never been an outbreak to compare with those experienced in Mandalay and Prome.

Small-pox.

Local outbreaks of small-pox are of frequent occurrence in the jungle villages, and are often severe. In 1910 for example one village of 40 houses in the Ataran plain had 34 cases, of which 30 ended fatally. A serious epidemic of small-pox occurred in 1926, the deaths numbering 103.

The people, however, especially if Karens, adopt such prompt methods of evacuation, deserting the village and blocking all the roads to it, on the appearance of

the disease, that the infection has little chance of getting much hold. On such occasions the whole village also shows the greatest anxiety to be vaccinated, which, if a somewhat late precaution in some cases, is no doubt useful in preventing a recurrence of the epidemic. Only once in six years has the number of recorded deaths from small-pox been as many as one per 1,000 so that the measures taken are evidently fairly effective. In Moulmein town vaccination has been compulsory since 1885 and the Vaccination Act was extended to the rest of the district, except the backward tracts, in 1924. The indigenous population take readily to vaccination and indeed to all forms of inoculation as this type of medical treatment accords well with indigenous ideas of medicine. The average number of successful vaccinations during the five years from 1927-28 to 1930-31 was 21,120.

Vital Statistics.

The village and ward headmen are responsible for recording statistics of deaths and births. Both the reporting of these occurrences and the recording of them are frequently performed in a rather perfunctory manner, but within the limits of local medical knowledge the statistics are probably fairly reliable. As, however, apart from the well known epidemic diseases such as plague, small-pox and cholera practically the only diseases recognized are "fever", "old age", "infantile ailments", and dysentery, the statistics are not very valuable from a medical point of view. Births invariably exceed deaths and the population in rural areas is increasing steadily. The average ratio of deaths per thousand for the decade 1901-10 was 18.70 and for the decade 1922-31 it was 12.90.

Sanitation.

In Moulmein and Kawkareik towns conservancy operations are conducted by the Municipality and Town Committee respectively. Moulmein long had an unenviable reputation in the matter of sanitation. For the first thirty years of its existence it consisted of tortuous streets and a maze of mat houses extending to the river bank and in places overhanging it. Fortunately from the point of view of sanitation, fires were of frequent occurrence, and after a great fire in 1843 Major Broadfoote endeavoured to get the whole town rebuilt on scientific lines, but his proposed broad streets involved such a displacement of the residents that an uncompromising opposition caused the failure of his attempt. As late as 1860 we find a Commissioner commenting on the odours of Nayabasti, which he said could be detected hundreds of yards away, and pointing out the danger to health from this and other similar insanitary quarters. Of late years the standard of conservancy work in the town has greatly improved and is now as high as in most towns in

the province. Sanitation in rural areas is mainly dependent on the enforcement of the rules under the Village Act designed to improve the sanitary condition of villages. Riverine villages are particularly liable to become insanitary owing to their cramped situation on the river bank, but the water-logged condition of the country in the rains makes improvement difficult of attainment. The Burmese style of architecture, however, prevails throughout the district, and the consequent free passage of air under and through the houses is undoubtedly a powerful factor in keeping even crowded villages comparatively sweet and wholesome.

Except in the monasteries and some of the larger houses actual sanitary arrangements can scarcely be said to exist in most villages and patches of jungle near a village tend to be noisome places in the dry weather. However in Môn villages at any rate the roads are kept fairly clean and the standard of sanitation is higher than in most Burmese villages.

Hospitals.

There are four hospitals in the district, at Moulmein, Kawkareik, Amherst and Ye, and there is also a branch dispensary in Moulmein. Although there was always a Civil Surgeon attached to the staff of the Commissioner, the early hospital arrangements of Moulmein were entirely inadequate to the needs of the general public. The first predecessor of the present hospital was a sort of barrack dignified by the title of General Hospital. Both in 1840 and 1841 strong representations were made by the Commissioner to the Bengal Government, asking for the establishment of an adequate hospital, but he was informed that Government regarded it rather as a subject for private enterprise than for Government grant. By 1846, however, a general hospital had been erected, partly at any rate, by private subscription, and Government sanctioned a monthly expenditure of Rs. 277-14-0 to supply a subordinate staff. This hospital became very popular, and so great was the reputation of its Civil Surgeon in 1850 that patients from remote parts of the Burmese kingdom used to come for treatment. The management was in the hands of a committee, partly official and partly non-official.

The present Moulmein hospital is Municipal, and was opened in 1877. It is in charge of the Civil Surgeon.

It contains 135 beds and the average number of in-patients is between 100 and 125. The average daily attendance of out-patients is about the same. There is an operating theatre and quarters for the matron and nurses and the Assistant and Sub-Assistant Surgeons.

The Kawkareik hospital is maintained by the Town Fund and was opened in 1902. It has accommodation for 14

in-patients and the average number of in-patients is about 10. The average daily attendance of out-patients is about 35.

The Amherst hospital is maintained by the District Council and dates from 1892. It has accommodation for 14 in-patients. The average daily attendance of out-patients is about 35.

The Ye hospital is maintained by the District Council out of the District Cess Fund, and was opened in 1892. The building is old and unsuitable. It is hoped to effect radical alterations in the near future. The present hospital contains nine beds which are frequently found insufficient. The average daily attendance of out-patients is about 40.

All these hospitals are partly maintained by private subscriptions and donations, but as usual the indigenous races do not contribute anything like the amount which could reasonably be expected. The Kawkareik, Amherst and Ye hospitals are in charge of Sub-Assistant Surgeons.

The Branch Dispensary in Moulmein is a Municipal institution, situated at Battery Point, *i.e.*, at approximately the other end of the town from the General Hospital. It was opened in 1904, and is in charge of a Sub-Assistant Surgeon. What a boon it can be when under popular management is shown by the average daily attendance, which rose from 28 in 1910 to 60 in 1911 and is now 100.

Leper Asylum.

The Moulmein Leper Asylum was established in 1898 as a branch of the "Mission to Lepers in India and the East" and was erected out of grants from the parent society, the Local Government, and neighbouring Municipalities. On an adjacent site Government in 1906 erected a pauper ward for lepers committed under the Leper Act of 1898. All other inmates are "voluntary". The revenue is derived from monthly capitation grants from Local Funds and from Government, and from voluntary subscriptions.

There is accommodation for over 100 lepers and the asylum is usually almost full. The institution is Christian but undenominational and all inmates enjoy complete freedom in religious matters.

Ellen Mitchell Memorial Hospital.

The Ellen Mitchell Memorial Hospital is a private hospital in Moulmein, which is run by the American Baptist Mission. The hospital is intended primarily for women and children and specialises in midwifery and gynæcology. It organises training classes for nurses and midwives. Its charges are very moderate and the work done by the hospital is very valuable.

CHAPTER XIV.

MINOR ARTICLES.

Moulmein History; Fires; Land Tenure; Food Supply; Newspapers; Town Administration; The Port; The Modern Town; Moulmein Subdivision and Township; Kado Kawhnat; Kawhla; Chaungzon Township; Chaungzon; Kwanhla; Pampa and Muritgale; Sèbala and Kamake; Kalwi; Kwanyaik, Ywalut, Mudu, Kahnyaw and Kalaw; Kyaikmaraw Township; Kyaikmaraw; Nyaungbinseik; Karon; Tarana; Kawthat; Dhammathat; Peinnègon; Hnidon; Kawkareik Subdivision and Township; Kawkareik; Kyondo; Kawbein; Kawbauk; Kanni; Nabu-Hnitcha; Kya-in Township; Kya-in Seikkyi; Kya-in; Winyaw Seikkyi; Kale; Tagundaing; Amherst Subdivision; Mudon Township; Mudon; Kwandon; Kamawet and Kalawthut; Tagundaing and Pa-auk; Amherst or Kyaikami Township; Amherst; Wagaru; Karokpi; Panga; Ye Township; Ye; Hangan; Asin; Taungbon and Thaungbyin; Kawdut and Hnitkarin; Lamaing and Mawkanin; Zibyuthaung; Islands.

Moulmein History.

Moulmein is situated in 16° 29′ north and 97° 38′ east at a distance of twenty-eight miles from the sea on the left bank of the Salween River just below its junction with the Gyaing and Ataran. It has been the headquarters of the Amherst District ever since its selection in preference to Amherst by General Sir Archibald Campbell in 1827. Before the annexation it was a mere fishing village of which no history is recorded. Its subsequent history has been one of almost continuous growth although the increase in population has slackened considerably during the last thirty years.

By 1832 the fishing village of Burmese times had become a town of 14,000 inhabitants exclusive of a garrison of 1,700 troops. Unfortunately no attempt seems to have been made in early years to ensure that the town should be laid out in a convenient and sanitary manner. For the first thirty years of its existence Moulmein consisted of a maze of tortuous streets and mat houses extending down to the river's edge. To this day it bears the marks of the early lack of system. Much of the fine water front has been permitted to be covered with unsightly buildings; the best residential quarters, except the new Civil Station on the Ridge, frequently adjoin areas which can only be described as slums and the town is studded throughout its length with squalid and insanitary *bustis* and bazaars.

Fires.

The inadequacy of the early police arrangements and the fatal consequences of the lack of adequate sanitation and water supply have been referred to elsewhere, but the greatest enemy the town has had to contend with has been fire. In 1831, 321 houses were burnt in one fire. In 1843 another

great fire occurred, and Major Broadfoote attempted to take advantage of it to get the whole town re-built on scientific lines, unfortunately without success. In 1846 three-quarters of the town was destroyed by fire. On Christmas day, two years later, six lakhs worth of property shared the same fate, the fire extending from St. Matthew's road to the old court-house and thence to the water's edge. After the last disaster the inhabitants suggested the establishment of an area in which the construction of houses of reasonably fireproof materials only was to be permitted, but Mr. Colvin thought this would press unduly on the poorer classes and contented himself with recommending Government to insist on tiled roofs in the centre of the town and to assist with money and materials in enforcing the regulation. At the same time three fire engines were supplied, and large wooden reservoirs whence they could obtain water were erected in various parts of the town. Nevertheless, in 1854, another extensive fire occurred, which destroyed 400 houses between Penang Street and Tavoyzu Bazaar along both sides of Lower Main Road down to the water's edge. In November 1856 yet another fire destroyed all the dwellings from Penang Street to Freemasons' Street. After the last two fires Mr. Hobday, who had made the first survey of the town in 1851, a map of which is still extant in the Deputy Commissioner's Office, was deputed to make a fresh survey of the burnt-out area, and new roads and streets were laid out. In March 1865 another great fire occurred, which led to the opening out of three more new streets. By this process of baptism by fire Moulmein gradually assumed its present form.

Land Tenure.

In the years immediately succeeding the annexation every encouragement was given to immigrants, who were allowed to clear and occupy land indiscriminately with or without permission. With the growth of the town, however, urban land began to acquire value, and in 1845 Sir H. M. Durand framed the first rules for the grant of town lands. Under these rules land applied for was notified for one month in the local newspapers, and was then sold by auction at the Court-house.

Portions of the town lands were surveyed in 1847 and leasehold grants were issued for them, the only charge being a registry fee of one rupee, which was raised in 1856 to two rupees. In 1858 a new form of leasehold grants was issued, charged with a rental of Rs. 5 per acre. Meanwhile grave irregularities had crept into the Grant Department owing to the want of rules, and had given rise to anomalous tenures, such as "renewed grants", which were mere reissues of leaseholds which had expired or been sold, and "split grants", which were supplementary

grants issued on the subdivision of an original one. In 1861 grants were also issued in fee simple, leaseholders prior to April 5th 1858, redeeming the land tax at the rate of Rs. 5 per acre, and those subsequent to that date at twenty years' purchase, *i.e.*, Rs. 100 per acre. A fresh survey of the town was made in 1863, and a land register was instituted, which materially assisted to reduce matters to order. There were, however, no rules for the transfer of grants, and it was not until the Registration Act of 1871 that the working of the Grant Department became satisfactory. The previous system had broken down owing to the absence of rules for recording transfers and the inaccuracy of early surveys. The breakdown of the latter was due to the ignorance of the surveyors, " who in some cases measured the area of the house only, leaving out the compound altogether," as Mr. Barr, the officer in charge of the Grant Department reported in 1871 in his comprehensive note on the history of land tenure in Moulmein. The fundamental error, however, was the failure to take a comprehensive view of the future town, and Mr. Barr contrasts the haphazard way in which Moulmein was allowed to develop with the system adopted in Rangoon, where, after the capture of the town, " a survey was at once commenced laying it off in rectangular blocks subdivided into allotments for buildings."

An unfortunate result of the lack of system in the disposal of the town lands is that Government gets but little revenue from an area where land is very valuable.

Food Supply.

The difficulties regarding the food supply of Moulmein in its early days have already been referred to. For some time Government allowed stores to be brought from Calcutta and Madras free on Government ships. With a reduction in the garrison, however, this privilege was withdrawn, and the cost of living again became very high, so that 1841 heard the same complaints of high prices and bad servants as were still rife in 1912.

Newspapers.

The first newspaper printed in Burma appeared in 1836 from a press established at his own expense by the then Commissioner, Mr. Blundell. It was printed in both Burmese and English. Finding that the venture produced a profit of Rs. 150 a month, Mr. Blundell asked Government to transfer it to the education committee after re-imbursing his initial outlay. It then became known as the " Moulmein Chronicle," and was subsequently edited by Mr. Hough until Government thought it advisable to put an end to all official connection with the press. In 1846 there were two Moulmein

papers, the "Chronicle" and the "Moulmein Free Press" which were followed in 1849 by the "Friend of Burma."

There are at present two English local newspapers the "Moulmein Advertiser," which claims lineal descent from the old "Chronicle" and the "Moulmein Observer," but these are of importance mainly as a medium for local advertisements. A Burmese newspaper "Kethaya" has a fair circulation.

Town Administration.

The administration of the town in its early days was vested in the Town Magistrate, and the first Municipal tax was the *Chaukidari,* or night watch tax, established in 1846 to supersede the previous voluntary contribution. It was assessed by blocks, and varied from two rupees to one anna a month according to the means of the assessee. In 1847 Mr. Colvin commented on the number of gharries in the town, remarking that apparently no one in Moulmein ever walked, and recommended a tax on wheeled vehicles. The suggestion was again made by his successor and was finally adopted. In 1864 the town funds were drawn from sale of town lands, hired carriage, cart and boat licences, dock and ground rent, slaughter house fees and fines. The Municipality was established in 1874, and an account of it has already been given in Chapter XI.

The Port.

In the early years of the British occupation there were two Master Attendants, or Port Officers as they are now called, one at Amherst and one at Moulmein. With the transfer of the headquarters of the Tenasserim provinces to Moulmein, Amherst speedily dwindled into insignificance, and the post of Master Attendant there was abolished. The duties attached to the post in Moulmein were multifarious, and included the charge of the police until the appointment of a special Police Magistrate, and the functions of a Magistrate, Civil Judge, Collector of Timber Duties, Postmaster and Storekeeper. The pilots, of whom there were four, were also under his charge. They were paid a fixed salary by Government, and pilotage dues were credited to the State. The river had been buoyed before 1830, but the buoying was not very accurate, and the pilots were underpaid, incompetent and intemperate, so that grounding of ships was a frequent occurrence. The channel now in use was not discovered until 1842, when Lieutenant Fell in the course of taking soundings came upon it. In 1847 the Pilot Service was thrown open to competition, and the pilots were paid by half the pilotage dues. These, however, barely afforded a living wage, and the service showed no

improvement, so in 1849 the previous system was resumed. A system, under which the pilot took all the pilotage dues, was instituted in 1856, but as late as 1867 of such ill repute was the pilotage of the port that it was only with difficulty that insurance companies could be persuaded to insure ships going up the Moulmein river.

In 1922 the Pilot Service was re-organised. There are now five efficient European pilots, who are paid from the Pilot Fund, which consists of the pilotage fees charged to piloted vessels and is administered by the Port Officer.

The history of the growth of the port is so closely connected with the history of the district as a whole that it has already been dealt with in most of its aspects in previous chapters. An account of the growth and decline of the ship-building industry and of the development of the timber trade will be found in Chapter V, and details of the steady increase of the trade of the port, and of the nature of its exports and imports have already been given in Chapter VI.

Moulmein is a commercial port, under the executive charge of a Port Officer, who is an executive officer of the Burma Marine Service. The Port extends along the entire frontage of the town for a distance of about five miles. There is berthing accommodation for 14 vessels of from 400 to 500 feet in length and from 20 to 27 feet in draught. Vessels up to 650 feet in length can be accommodated at Mupun anchorage. There is a floating jetty at Mission Street available for vessels from 300 to 325 feet long, and with a depth of 22 feet alongside. There are seven other small jetties. There are four anchorages in the river, and the channels are navigable by ships of any length up to 650 feet.

The Modern Town.

The configuration of Moulmein is roughly that of an inverted " L," the vertical line representing the course of the Salween and the horizontal line that of the Gyaing-Ataran. The former contains four divisions of the town and the latter one. The situation is one of great natural beauty. The traveller arriving by sea passes up the river between banks crowned with evergreen foliage, while parallel with the banks on each side run low ranges of hills studded with pagodas. The town itself lies among trees at the foot of a ridge, while on the other bank of the Salween is the promontory of Martaban with its low hills stretching away north and west till they merge in the great mass of the Thatôn Hills, Through the town itself, parallel with the vertical line of the inverted " L ", runs a ridge, on which stand the two large pagodas of Uzina and Kyaikthanlan, the gilded shaft of the latter strikingly conspicuous in the sunlight. Be-

tween them are three other conspicuous pagodas from one of which the midday gun, a manufacture of Fort William in 1815, was formerly fired and ships were signalled. The view from this ridge can hardly be surpassed even in this land of riverine scenery. The impression of decay which closer inspection of the town leaves is hidden among the trees which line the river bank. On the west are the low hills of Bilugyun, and northwards the bold mass of the Thatôn Hills and the rugged outline of the limestone eminence known as the Duke of York's Nose, which is about 2,000 feet in height. To the east and north-east stretch vast paddy plains intersected by the courses of the Gyaing and Ataran Rivers and studded with vast isolated masses of limestone which rise up sheer out of the plain. The whole eastern horizon is bounded by the lofty spurs of the Dawna range, while the low chain of Taungnyo Hills stretches away to the south dividing the fertile plains of Mudon from the valley of the Ataran.

The configuration of the town itself can also be well studied from the ridge. It lies long and narrow along the bank of the Salween from the mills of Mupun between the river and the paddy fields to the Maidan and Battery Point at the northern end of the ridge, whence it turns eastwards along the Ataran, on the banks of which are more mills. Two main roads run the whole length of the town from the Maidan, round which lies the old Cantonment, to Mupun. Parallel with these for part of the way run the Strand Road on the river bank and another road at the foot of the ridge. Numerous cross roads run east and west, the chief being Daingwunkwin Road leading from the Maidan to the Nyaungbinzeik ferry which connects Moulmein with the hinterland.

The most conspicuous buildings in the town, other than the pagodas mentioned above, are Salween House, built as a private residence by Colonel Bogle and now used as the office of the Commissioner, the new Government High School, St. Matthew's Church, Saint Augustine's Church, the new Municipal Offices and Clock Tower, St. Patrick's Church, the Ellen Mitchell Hospital, the Mission Street buildings of the American Baptist Mission, the Deputy Commissioner's Office and the Surati Mosque. Salween House stands on the ridge above Salween Park, a pleasant pleasure ground with gardens, a bandstand and a golf course. The Ellen Mitchell Hospital stands to the north of the Uzina Pagoda in a conspicuous position below the crest of the ridge. On the ridge to the south of Salween House is the new Civil Station, where are situated the residences of the Deputy Commissioner, Sessions Judge, District Superintendent of Police and other officials. Below

the Civil Station is St. Augustine's Church and the Society for the Propagation of the Gospel Mission. At the north end of Salween Park, are the new Government High School. the Deputy Commissioner's Office and St. Matthew's Church, a building of considerable architectural merit the clock of which is a memorial to the members of the staff of the Bombay-Burmah Trading Corporation who were killed in the Great War. Below the Ellen Mitchell Hospital lie the buildings of the American Baptist Mission, the Gymkhana Club, the Circuit House, the Municipal Offices and the Offices of the Forest Department and Public Works Department. In the slum known as Nayabasti below the Kyaikthanlan Pagoda are St. Patrick's Church and the old Jail, north of which, near the Maidan, another pleasant open space used for football, cricket and other games, are the present Civil Jail and Military Police Lines. On the water front on the Strand Road are the Post Office, Port Office and Customs House. The surface of the town is undulating, the eminences being occupied by the houses of Europeans and Anglo-Indians and the wealthier local inhabitants and the depressions by the unsavoury slums referred to above. The business quarter of the town is situated along the river bank. Opposite the extreme north-west angle of the town is situated a small island known as Crow Island, which perhaps deserves mention, as it harbours the whole of the considerable crow population of the town. Every evening about sunset throughout the year one sees the crows from all over the town, which has an area of 15 square miles, flying over to this island to roost. At daybreak they return to resume their useful scavenging operations. The trade, industries, population and administration of the town have already been dealt with in their appropriate chapters.

Moulmein Subdivision and Township.

Moulmein Subdivision, the headquarters of which are at Moulmein, is situated on the north-west corner of the district, and consists of three townships, Moulmein, Chaungzon and Kyaikmaraw.

Moulmein Township consists of the lands immediately surrounding the municipal area together with Kado and the other villages lying to the north of the Gyaing and a group of islands in the Salween near Martaban.

Kado Kawhnat.

The most important village in the township is Kado, which had a population of 2,693 at the census of 1931. Its inhabitants are chiefly Môns, but adjoining it is the village of Kawhnat occupied by Burmans numbering 1,658 in 1931. These villages are situated on a peninsula on the left bank of the Salween about five miles from Moulmein. Kado is the site of

an important Government timber depôt and revenue station, and gives its name to the Kado and Agency Forest Division. It is a place of considerable wealth derived from the timber trade, which, however, is decreasing owing to the exhaustion of the forests upon which it depends. A cluster of shrines is a feature of Kawhnat, and affords excellent examples of glass mosaic work, painting in relief and ivory carving.

Kawhla.

The other village of some size is Kawhla which had a population of 1,782 inhabitants at the 1931 census.

Chaungzon Township.

Chaungzon Township comprises the islands of Bilugyun Kawmupun, Chaungwakyun and Kyunnu, and has an area of about 200 square miles. It is densely populated, having according to the latest census (1931), 62,210 inhabitants of whom the great majority are Môns. In 1911 the population was 49,271 and in 1891 was 34,056.

Already cattle have to be sent away from the island for grazing, and complaints of scarcity of firewood are heard. Situated at the confluence of three rivers and thus receiving an ample deposit of silt, the island of Bilugyun forms a paddy tract of exceptional fertility, and its grain is consequently of the highest character and much in demand for export to Europe. The inhabitants of the island themselves not infrequently consume inferior rice imported from elsewhere, so satisfactory is the price offered for their own grain.

Chaungzon.

The headquarters of the township are at Chaungzon which, like most of the villages in Bilugyun, is situated at the foot of the range of hills which forms the backbone of the island. The hill sides are covered with garden cultivation, and rubber is also grown, while lands too flooded for paddy cultivation are utilized for growing the *dhani* palm.

Chaungzon itself had in 1931 a population of 3,134, but the villages of Karaikthit, Kwanthe and Payagon which adjoin it really form one semi-urban area with a total population of nearly 8,000. Chaungzon contains the Township Court and offices, a post and telegraph office, opium shop and a bungalow. The most striking feature of the place is a charming artificial lake, which lies in a division of the hills dammed by a portion of the Government road running from Chaungzon to Kalwi. The population is chiefly Môn by race and agricultural by occupation, as is the case of almost all the villages in the township, but there is also a Burmese element.

In this group of villages are several rice mills to which paddy is sent by the cultivators of the centre and south of

the island. After milling, the rice is sent by the Chaungzon-Natmawseik Road to be shipped to Moulmein for export. Close to Kwanthe is the village of Mayan, the most southerly port of call of the Irrawaddy Flotilla launches.

Kwanhla, Pampa and Muritgale.

Other large villages in the south of Bilugyun are Kwanhla, Pampa and Muritgale, which showed populations of 1,133, 1,297 and 2,671 respectively at the census of 1931. The last-named is a much over-crowded village, and suffers from incessant visitations of epidemic disease.

Sèbala and Kamake.

In the village of Sèbala, which has 779 inhabitants, the chief occupation is sea-fishing, which is also found as an industry subsidiary to agriculture at Kamake, a village of twice the size.

Kalwi.

In the north of the island the village of Kalwi, which had a population of 1,931 in 1931, possesses a rice mill which deals with paddy from the north part of Bilugyun. The prosperity of the place has, however, declined somewhat since the building of the railway to Martaban. The inhabitants, who are chiefly Burmans, are poor and somewhat addicted to crime.

Kwanyaik.

Kwanyaik, which had 1,551 inhabitants in 1901, was destroyed by fire in the dry weather of 1912, but most of its inhabitants are men of some substance, and the village was speedily rebuilt on an improved plan. At the census of 1911 the population amounted to 2,567 persons and in 1931 to 2,738 persons. The chief occupation is agriculture.

Ywalut, Mudu, Kahnyaw and Kalaw.

Other large villages in the north are Ywalut, Mudu, and Kahnyaw which had 3,091, 1,915 and 2,657 inhabitants respectively in 1931. They are all Môn agricultural villages of the type of those described above. At Kalaw is an ancient pagoda of considerable sanctity and a cave of some archæological interest.

Kyaikmaraw Township.

The Kyaikmaraw Township is the central township of the district. Its northern boundary is formed by the Gyaing River from its junction with the Salween to the mouth of the Pabyauk stream. The boundary then proceeds up this stream to the southern boundary of the Paingyat village tract, following which it goes on by way of the western boundaries of the Ibaing, Kayinzeik Winpok, Winka and Tihuthan village tracts to the junction of the boundary of the last-named with that between Ngapu-in

and Yathe-bisakat villages. It then follows the south and east boundaries of Ngapu-in and the southern boundary of Chaunghnitkwa village tracts to the junction of the last with the Zami River, which it descends to its junction with the Winyaw. It then proceeds up the Winyaw to Tawkwin, leaving it to follow the southern boundaries of that *kwin* and Hlakazaing village tract to the boundary of the Mudon Township, which is the watershed of the Taungnyo Hills. The boundary proceeds along this watershed to the eastern boundary of the Moulmein Township, which it follows to the Gyaing.

The township comprises the whole drainage area of the Ataran River and part of that of the Gyaing, but the southern and eastern portions are composed of rising ground covered with *indaing* jungle and sparsely populated.

One hundred and seventy-five square miles in the Kyaikmaraw Township were under cultivation in 1931. The population at the census of 1931 was 66,354.

Kyaikmaraw.

The headquarters of the township are at Kyaikmaraw which is situated on the left bank of the Ataran about 15 miles south-east of Moulmein, with which it is connected by road. It is inhabited chiefly by Môn agriculturists, the population numbering 822 in 1877, 1,597 in 1901, 2,497 in 1911 and 2,671 in 1931. The principal buildings in the place are the Township Court and Offices, Public Works Department Bungalow and a Police-station.

Nyaungbinzeik.

Nyaungbinzeik is a large and wealthy village on the right bank of the Ataran, and by virtue of its ferry is almost a suburb of Moulmein. The population, which numbered 2,750, in 1931, is largely Burman, and is employed in petty trade, agriculture, fishing, and in the pottery and tile-making industries described in Chapter VI.

Karon.

Karon is a village situated near the celebrated farm caves about five miles from Moulmein. It is the centre of large betel-nut and sugarcane gardens. The population is chiefly Môn and numbered 1,452 at the census of 1931.

Tarana.

Tarana is a large Môn village of nearly 4,107 inhabitants, situated on the bank of the Gyaing. It has long been a place of some size, its population in 1877 numbering 1,617. The inhabitants are almost exclusively engaged in agriculture.

Kawthat.

Close to Tarana about a mile from the river is Kawthat, a village of similar character. Its population was 1,708 at the 1931 census.

Dhammathat.

Dhammathat is a picturesque village on the bank of the Gyaing, a few miles above Tarana and seven miles from Moulmein. It lies at the foot of one of the large limestone hills which form so characteristic a feature of these plains, and is chiefly notable for its caves, which run right through the hill. The walls and roofs are in some instances decorated. The only other points of note in the place are the number of its *pongyis* and of the pagodas which stud the hill. Its population in 1931 numbered 1,274.

Peinnègon.

Peinnègon on the left bank of the Ataran was originally a Shan settlement, but the present population, which numbers over 2,000, is chiefly Môn. The principal occupations of the villagers are agriculture and garden cultivation.

Hnidon.

Hnidon, also on the left bank of the Ataran, is a village of Karen and Burman agriculturists, who numbered 1,954 at the 1931 census.

Kawkareik Subdivision and Township.

Kawkareik Subdivision comprises the eastern half of the district, and consists of two townships, Kawkareik and Kya-in. The Subdivisional Officer's headquarters are at Kawkareik.

Kawkareik Township is the north-eastern township of the district. It is bounded on the north by the Thatôn District, and the boundary commencing from the junction of the Pabyauk stream with the Gyaing River, is identical with the district boundary as described in Chapter I. Its eastern and southern boundaries are likewise identical with the district boundary and march with the Siamese frontier. From the frontier the boundary follows the Dawna range to its junction with the ridge which forms the northern boundary of the Udaung village tract, and then follows this ridge to the source of the Hlakado stream. It follows this stream to its junction with the Haungtharaw and then the Haungtharaw itself to its junction with the north-west boundary of the Kammareik village tract, whence it proceeds along the north-west boundaries of this and the Thameindut village tracts and the north-east, east and south boundaries of the Kywèbyu-in *kwin* to the Kayin stream which it follows to its junction with the south boundary of the Ibaing village tract. It then proceeds along the south and west boundaries of that tract to the Pabyauk stream. which it follows to its junction with the Gyaing.

The township includes the eastern hilly part of the district as well as the fertile plain of the Gyaing and Haungtharaw, and is consequently comparatively sparsely popu-

lated, its area of nearly 2,000 square miles having 77,005 inhabitants in 1931. The figures for 1891, 1901, 1911 and 1921 were 19,415, 31,192, 54,440 and 61,878, respectively. There has thus been a great increase in population in the last forty years. The area under cultivation was 201 square miles in 1930-31 as compared with 25 square miles in 1903-04 and 113 square miles in 1910-11. The headquarters of the township are at Kawkareik.

Kawkareik.

The town of Kawkareik is situated near the foot of the Dawna range on the banks of the Kawkareik stream, a tributary of the Haungtharaw, about 15 miles east by south of the junction of the Hlaingbwè and Haungtharaw Rivers. It occupies an important position on the chief route to Siam, that *viâ* Kyondo and Myawaddy, now served by the Public Works Department road which runs through the town. The place itself is rather straggling and is cut in two by the Kawkareik stream, over which however a good wooden bridge has recently been constructed.

The population is somewhat mixed, but consists mainly of Taungthus, Shans and Karens. There is also a Bengali quarter permanently inhabited by an ever changing population of immigrants from Bengal, who stay about seven or eight years and then return to India, their places and land being taken by fresh arrivals. In 1876 the total population of the town numbered 2,135 persons, which had risen to 3,919 in 1901, and 5,559 in 1911. The town is administered by a Town Committee, whose functions have already been described in detail in Chapter XI. The chief buildings in the town are the Court-house, the Police-station, the Town Committee Bazaar, the Hospital, the quarters of the senior government officials and the Forest Department bungalow, picturesquely situated on a ridge above the hospital, and the Public Works inspection bungalow near the stream. The view of the town and the hills behind to a traveller approaching from Kyondo is extremely picturesque.

Kyondo.

Kyondo is a straggling village situated on the Haungtharaw at the terminus of the Public Works Department road from Myawaddy. It is fifteen miles from Kawkareik, of which it may be said to be the port. The population is mainly Karen, Indian and Chinese. The Karens are cultivators and the Indians and Chinese are mainly engaged in trade, transport and cattle-breeding. In 1877 the population was 1,400 which had increased to 2,740 in 1931.

Kawbein.

Kawbein is a large village situated about a mile from the south-bank of the Gyaing River on both banks of a tributary. In 1877

its population numbered 1,400 and had increased to 1,999 by 1901 and to 3,315 by 1931. Its inhabitants are chiefly Môn agriculturists, but as usual in villages of this size, there is a sprinkling of Chinese and Indian shop-keepers.

Kawbauk.

Kawbauk is a large village adjoining Kawbein, the boundary between the two being purely artificial. It is rather more spacious than its neighbour, most of the houses standing in small compounds of their own. The population, which consists chiefly of Môn agriculturists, numbered 570 in 1877 and 1,114 in 1901 and 1,704 in 1931.

Kanni.

Kanni village, which had a population of 2,265 in 1931, is situated on the Haungtharaw. It is chiefly inhabited by Talaings who work land protected by the Kanni Migalon embankment referred to in Chapter IV.

Nabu-Hnitcha.

Nabu-Hnitcha is a large village about fifteen miles north-west of Kawkareik on the banks of the Nabu stream, a tributary of the Hlaingbwè. The population includes many Indian shop-keepers who supply all the surrounding district. The population was 684 in 1901, 880 in 1911 and 2,318 in 1931.

Kya-in Township.

The Kya-in Township was constituted in 1911, and has an area of 1,238 square miles. Its population was 34,914 in 1921 and 61,333 in 1931, an enormous increase which may be due in part to more accurate enumeration but must be mainly due to immigration.

The bulk of it was carved out of the previous Kyaikmaraw Township, which had an area of 2,475 square miles. Kya-in Township is poor and sparsely populated, comprising the forest covered interior regions of the district. Its northern boundary marches with the southern and eastern boundaries of the Kyaikmaraw Township, and the western boundary of the Kawkareik Township, while its eastern and southern boundaries are formed by the Siamese frontier already described in Chapter I. Its western boundary, starting from Hsadeik *taung* on the frontier, is the watershed between the Winyaw and Ye Rivers as far as the centre line of the Taungnyo Hills, which forms the eastern boundary of the Ye, Kyaikkami and Mudon Townships, which adjoin Kya-in Township on the west.

Kya-in Seikkyi.

The headquarters of the township are at Kya-in Seikkyi on the right bank of the Zami River. The place has been notified as a town but is really only a village with a fair number of shops. The village contains the Township Court and offices and is

the terminus of the Irrawaddy Flotilla Company's launches up the Ataran and Zami. Its population in 1931 was 3,276.

Kya-in.

The village of Kya-in is situated three miles inland from Kya-in Seikkyi and is the local headquarters of the American Baptist Mission, which has many converts among the Karens in these parts.

Winyaw Seikkyi.

Winyaw Seikkyi is the principal village on the Winyaw stream. Its population is mainly Môn and the villagers are engaged principally in forest work.

Kale.

Kale is a large village situated between the Winyaw stream and the Taungnyo Hills about six miles south of the junction of the Zami and Winyaw. It is a long and scattered village, almost every house standing in its own compound. It is situated in the middle of a long stretch of paddy land which lies between the *indaing* forest at the foot of the Taungnyo Hills and the jungle along the banks of the Winyaw. Its population, which numbered 1,026 in 1901, 1,625 in 1911 and 2,281 in 1931, is chiefly composed of Karens engaged in agriculture, garden cultivation, wood *cutting*, anl cattle grazing for hire. The village was formerly the centre of a very large circle and the place of residence of the *taikthugyi*, but the circle has been subdivided and the subordinate village headmen have been made independent.

Tagundaing.

About two miles south of Kale stands the large village of Tagundaing, which is situated in the form of a circle round a large swamp, which serves as a grazing ground for the local herd of buffaloes. The village is considerably older than Kale, and was originally the headquarters of the circle, which is still locally known as the Tagundaing Circle. Its inhabitants are of the same race and occupations as those of Kale, and numbered 1,165 in 1901, 1,261 in 1911 and 1,510 in 1931.

Amherst Subdivision.

The Amherst Subdivision comprises the coast lands between the Taungnyo range and the sea and the valley of the Ye River. It consists of three townships, Mudon, Kyaikkami and Ye. The Subdivisional Officer's headquarters are at Amherst, the vernacular name of which is Kyaikkami.

Mudon Township.

The Mudon Township is the most northerly in this subdivision. On the north it adjoins the Moulmein Township, and on the east

the Kyaikmaraw and Kya-in Townships. Its southern boundary is formed by the Wagaru River, and its western by the Gulf of Martaban and the Chaungzon Township. The township is for the most part flat and fertile, consisting of alluvial soil which produces some of the best paddy in the district. The population, which is chiefly Môn, is dense, and numbered 72,844 at the census of 1931, the area of the township being 230 square miles of which 164 were under cultivation in 1930-31.

Mudon.

The headquarters of the township are at Mudon, which is situated nineteen miles south of Moulmein on the Moulmein-Amherst Road. It has long been a place of some importance, its population in 1880 being as much as 2,475. It has at present a population of 3,721 inhabitants. The majority of the inhabitants are Môn cultivators. The chief buildings are the Township Court and offices, a police-station and a bungalow. The village is a large trading centre in the paddy of the Mudon plain, which has a more than local reputation for size and evenness of grain.

Kwandon.

Close to Mudon is situated the village of Kwandon, which is also Môn and agricultural. Its population in 1931 was 1,931. Within a mile of this village is the sacred Kangyi lake. Boat races are held on it annually and attract large numbers of people.

Kamawet and Kalawthut.

Kamawet is a large village south of Mudon about a mile from the Moulmein-Amherst Road. Its population, which chiefly consists of Môn agriculturists, numbered 989 in 1877 and 1,760 in 1901 and 2,204 in 1931. South of Kamawet is the similar village of Kalawthut which has a rice mill which mills for the needs of the surrounding population. It had 1,076 inhabitants in 1877, and 1,571 in 1901 and 2,599 in 1931. In the vicinity of these villages is the Kyaikkamaw Pagoda, the annual festival of which is largely attended by pilgrims from Moulmein and the neighbouring country. Of the history of the pagoda nothing appears to be known.

Tagundaing and Pa-auk.

Other large villages in the township are Tagundaing and Pa-auk, the inhabitants of which are Môn agriculturists numbering 4,767 and 1,957 respectively at the 1931 census.

Amherst or Kyaikkami Township borders on the Mudon Township on the north, Kya-in on the east and Ye on the south. Its western boundary is the Gulf of Martaban.

Kyaikkami Township.

The township consists of extensive stretches of upland covered with jungle intersected by paddy plains which are often of considerable size and of which the better land is of great fertility. Most of the land cultivated with paddy is liable to inundation by sea water and has to be protected by extensive earthworks. A remarkable feature of the township is a series of sandy ridges crossing the paddy plains parallel with the coast. These are obviously old sea beaches.

Out of a total area of 928 square miles 90 square miles were under cultivation in 1930-31, as compared with 33 in 1903-04, the latter being more than double the cultivated area in 1893-94. The population is almost entirely Môn and numbered 38,325 in 1931 as compared with 12,988 in 1891 and 23,105 in 1911.

The headquarters of the township are at Amherst, which is situated at the mouth of the Wagaru River about 30 miles south of Moulmein by river and 54 miles by road. The situation is rendered very picturesque by a bold range of wooded hills on the landward side of the town.

Amherst.

A safe, though shallow, harbour is provided by the mouth of the Wagaru River, and there are two good bathing beaches which attract a number of visitors from Moulmein during the dry weather. The fine sea-breeze which blows during the day time in the hot weather keeps Amherst fairly cool even in April. The sea-bathing is safe and good though the water is somewhat muddy and Amherst does not really compare as a bathing resort with the southern beaches of the Amherst and Ye Townships, except that it is much easier of access. Amherst contains the Subdivisional and Township Offices and two Public Works Department bungalows. It is also the pilot station for the port of Moulmein. Green Island lighthouse adds to the picturesqueness of the beach.

Amherst's period of prominence was but brief. Originally selected by Mr. Crawford to be the headquarters of the Tenasserim provinces, it was superseded within a year by Moulmein for strategical reasons. The proximity of Moulmein has effectually prevented its developing into a port of any importance. Its original selection and christening after Lord Amherst, the Governor-General, have however given the district the name which it bears to this day. During the second Burmese war the town served as a sanatorium for the sick and wounded, and it is still the sanatorium of

Moulmein. The Môn name, Kyaikkami, "the floating pagoda," is said to be derived from the Yelè Pagoda situated on the rocks near Amherst Point. The annual festival of this pagoda, held at the end of the Buddhist Lent, attracts pilgrims from all over the district and from other parts of Lower Burma. The chief object of veneration is an image of Buddha said to have been brought from Ceylon and believed to be fashioned from a southern branch of the sacred *Bodi* or banyan tree of *Buddhagaya*. The population of the town is chiefly composed of Môns engaged in agriculture, fishing, salt manufacture and petty trade, but it also includes a considerable number of Mussulman traders. In 1901 the inhabitants numbered 1,373 which had risen to 4,162 by 1931.

Wagaru.

Wagaru, which according to the census of 1931 has a population of 2,976 inhabitants, chiefly Môn cultivators, is situated near the source of the Wagaru River. It was formerly the headquarters of the township, and was once a flourishing town. It is said to date back five centuries and to have been founded by King Kadu, and portions of walls and a moat still remain. There are two pagodas of note in the vicinity, known as Kyaiknapo and Kyaiknan, in connection with which an annual festival is held.

Karokpi.

The village of Karokpi is situated near the coast at the mouth of the Karokpi stream. Tradition says that it was founded by three Chinamen, and hence its name. The headquarters of the Extra Assistant Commissioner in charge of the township were transferred here from Amherst in 1869, but were retransferred a few years later. The village, which had a population of 3,301 in 1931, is the chief trading centre in the south of the township and exports paddy and salt. The local salt industry is in the hands of Chinamen, and there are also a few Indian petty traders, but the bulk of the inhabitants are Môn cultivators. An old wooden viaduct, two miles in length, connects this village with its neighbour Panga, but it is now sadly in need of repair.

Panga.

Panga, which had a population of 552 in 1877, 1,213 in 1901, 2,474 in 1911 and 4,722 in 1931, is situated on the north bank of the Panga *chaung*. It is a Môn agricultural village, and possesses some valuable durian gardens. The soil in the vicinity is very suitable for rubber cultivation, as is being successfully demonstrated by the Moulmein Rubber Plantations, Limited. Some of the villagers are engaged in the local salt industry.

Ye Township is the most southerly township in the district.

Ye Township.

It is bounded on the north by Kyaikkami Township, on the east by the Kya-in Township and Siam, on the south by the Tavoy District, and on the west by the Gulf of Martaban. A detailed description of the Siamese and Tavoy boundaries has already been given in Chapter 1. Out of an area of 1,258 square miles, much of which is hilly and covered with jungle, 143 square miles were under cultivation in 1930-31. The culturable portion of the township lies chiefly along the coast and in the valley of the Ye River and its tributaries, and is deeply intersected by salt water creeks. In 1903-04 the cultivated area was only 73 square miles, which, however, was an increase of 130 per cent within the previous decade.

The population which is mainly Môn in the plains and Karen in the hilly areas numbered 18,158 in 1891, 35,580 in 1911 and 56,535 in 1931. Until recently the township had a well deserved reputation for inaccessability and backwardness. In the old days the land journey from Ye to Moulmein took at least a fortnight. There is even to-day no sort of continuous line of communication by road between Ye and Panga in the Amherst Township even in the dry weather owing to the number of wide tidal creeks which the local inhabitants are unable to bridge. The railway now provides a ready, if inconvenient, means of communication with Moulmein. South of Ye the new road to Tavoy is useful only as a through road, as it misses all the larger villages. Communication by water in the dry weather has always been good. The township has greatly developed in the last twenty years. As in Amherst most of the paddy cultivation has to be protected from the sea by earthworks, but much of the land is fertile. Reclamation of several large mangrove swamps has been carried out in the last few years, and the process of reclamation is continuing.

The headquarters of the township are at Ye, a town

Ye.

situated on the Ye River about 12 miles from the sea. It is a place of considerable antiquity, and is said to have been founded in 92 B.E. by Princess Maradevi, who came from Tavoy, and who named it Awaikzazayapura. The name was subsequently changed by King Damaseti to Yazathihazeyapura. In Burmese times it was the local centre of Government and was strongly fortified, portions of the moat and wall being still extant. During the first Burmese war it was occupied without resistance by a small British force despatched from Martaban at the capture of the latter place. In 1877 it had a population of 2,694. This had risen by 1901 to 3,500, by 1911 to 4,980 and by 1931 to 6,917. There is fertile

paddy land and good durian and betel-nut plantations round the town.

Formerly there were two saw mills, but only one is now working owing to difficulty in disposing of the timber, which used to be employed in a considerable boat-building industry, now decadent owing to competition from Rangoon. Ye is the chief trading centre of the southern part of the township, but the volume of its trade is small. The chief buildings in the place are the township court and offices, the post and telegraph office, police-station and hospital.

Hangan.

About six miles from Ye on the Hangan stream, the chief tributary of the river, is the Môn village of Hangan. The population, which numbered 2,111 in 1901, 2,522 in 1911 and 3,566 in 1931, is now entirely agricultural, but formerly the boat-building industry flourished here also. *Dhani* thatch-making is an important domestic industry.

Asin.

Asin, another Mon agricultural village, is situated on the right bank of the Ye River about a mile from its mouth. It had a population of 2,629 in 1931.

Taungbon and Thaungbyin.

Taungbon village is situated on the Taungbon stream about eight miles from Ye. Its population, which numbered 3,404 in 1931, consists chiefly of Môn agriculturists, but also includes a sprinkling of Tavoyans. Salt was formerly manufactured here, but the industry has now been stopped under the orders of Government.

The neighbouring village of Thaungbyin is similar and had a population of 3,308 in 1931.

Kawdut and Hnitkarin.

Kawdut is a fairly active trading centre situated at the mouth of the stream of that name. Its population, which is chiefly Môn, numbered 3,109 in 1931. Much of the paddy from the fertile Lamaing plain passes through Kawdut, which also has a considerable trade in the salt manufactured at Hnitkarin, a village about five miles away on the other side of the stream. Hnitkarin is the most important certre of the salt industry in the township.

Lamaing and Mawkanin.

Lamaing is an important agricultural Môn village in the north of the township which had a population of 1,384 in 1901, which had risen to 2,092 in 1911 and to 3,138 in 1931. The celebrated Kèlatha Pagoda at Lamaing is said to contain a hair of Gawtama and its annual festival

attracts large numbers of pilgrims. Lamaing and the neighbouring village of Mawkanin with which it is connected by an embanked road are the centre of a fertile plain which is more or less secure from the sea and produces good crops of paddy.

Zibyuthaung.

Zibyuthaung is an interesting but odoriferous settlement of Tavoyan fishermen at the mouth of the Ye River, which is the centre of sea-fishing and the dried fish industry. Near Zibyuthaung is Pagoda Point near which is a delightful bathing beach which makes an ideal camping ground. From Pagoda Point there is a magnificient panoramic view of the coast.

Islands.

Much of the coastline of the Ye Township is rendered very beautiful by the proximity of the hills to the sandy beaches and the sea. The coast is studded with rocky, wooded islands of which Kalagauk, is the largest and most interesting. Kalagauk is divided from the main land by the Bentinck Sound and is about five miles long and supports a fairly large population engaged mainly in orchard cultivation. The stone of the island is good building stone and there were formerly extensive quarries worked by the Rangoon Port Trust. These quarries are now closed.

GLOSSARY.

Chaung—A stream, creek, channel, or watercourse.
Damin—A kind of fishtrap.
Dhani—A palm (*Nipa fruticans*) the leaves of which are used for thatching.
Gaungbaung—The Burmese head-kerchief.
Gharry (*Hind.*)—A hackney carriage.
Ghi (*Hind.*)—Clarified butter.
In—A lake or swamp.
In—A tree of the genus *Dipterocarpus.*
Indaing—A type of dry forest (*Dipterocarpetum*).
Ka—A kind of fish trap.
Kaing—Miscellaneous dry weather cultivation.
Kaukkyi—A type of paddy of long life period.
Kazin—A rice-field embankment.
Kwin—A division of land for revenue and survey purposes.
Kyaung—(*see Pongyi-Kyaung*).
Lè—Wet paddy cultivation.
Longyi—The Burmese skirt or loincloth.
Mayin—Hot weather paddy cultivation.
Myo-ok—A Township Officer.
Myo-wun—A Civil Official in Burmese times.
Nat—A spirit.
Ngapi—Fish-paste.
Pahso—The Burmese ceremonial skirt.
Pata and Patè—Different types of paddy cultivation, maturing later than the main crop.
Pongyi—A Buddhist monk.
Pongyi-Kyaung—A Buddhist monastery.
Pwè—A Burmese festival or theatrical entertainment.
Rishi—A Buddhist monk.
Sampan—A flat bottomed boat rowed from the stern. The oarsman faces the bows.
Seik—A landing place for boats, etc.
Shangale—A type of paddy of medium life period.
Shinpyu—The initiation into the novitiate of a Buddhist monk.
Taik—A division for revenue and administrative purposes.
Taikthugyi—The headman of a *taik.*
Taman—An embankment.
Taung—A hill.
Taungya—The dry cultivation of paddy on hill sides.
Thabaw—A plant, the leaves of which are used for mat making.
Thathanabaing—The head of the Buddhist church in the Burmese kingdom.
Thin—A reed used for mat-weaving.
Thitsi—The sap of a tree (*Melanorrhœa usitata*) used in Burmese lacquer work.
Thugyi—A village headman.
Tonga (*Hind.*)—A two wheeled pony trap.
Yahaing—A type of paddy, usually of short life period.
Yelaik—A type of paddy cultivation on flooded land, where transplanting is carried out down the slopes as the floods recede.
Zayat—A Burmese travellers' rest-house.

BIBLIOGRAPHY.

British Burma Gazetteer, 1880.

Manuscript letter books in the Office of the Commissioner, Tenasserim Division, 1825—1865.

Report on Revenue Administration, 1867, by Colonel Duff.

Report on the Tenasserim Teak Forests, 1852, by Dr. Falconer.

Report on land tenure in Moulmein, 1871, by Messrs. Barr and Coryton.

Settlement Report, 1868, by Captain Horace Brown.

Settlement Report, 1891-92, by Mr. A. P. Pennell.

Settlement Reports, 1892—94, 1894-95, 1895-96, by Mr. A Gaitskell.

Settlement Report, 1906-07, by Mr. G. P. Andrew.

Settlement Report, 1911-12, by Mr. P. E. Jamieson.

Settlement Report, 1930—33, by Mr. B. O. Binns.

Settlement Manual, by Mr. T. C. Wilson.

Burma Imperial *Gazetteer*.

Burma, by Sir George Scott.

" Notes on an Archæological Tour through Ramaññadesa, " by Taw Sein Ko.

" Notes on Antiquities in Ramaññadesa " (*Indian Antiquary, Volumes xxi* and *xxii*), by Major R. C. Temple.

" Notes on the Coalfields and Tinstone deposits of the Tenasserim Provinces." (*Records of Government of India Home Department No. X, 1856*), by Mr. T. Oldham.

" Geology of Pegu " (*Memoirs: Geological Survey of India, X*), by Mr. Theobald.

" The Oil Shales of Eastern Amherst, Burma, with a sketch of the Geology of the Neighbourhood " (*Records: Geological Survey of India, Volume LV, 1923*), by Dr. G. de P. Cotter.

" Mineral deposits of Burma " by Dr. G. de P. Cotter.

" Amended List of Ancient Monuments in Burma ", 1921.

List of objects of antiquarian and archæological interest in British Burma, 1892.

Report on the Demarcation of the Amherst-Siam Boundary, 1895-96.

Census Reports, 1911, 1921, 1931.

Main File, Territorial Divisions, Office of the Deputy Commissioner.

INDEX.

A

PAGE

Agricultural Stock 45
Agriculture 30, 59
Alaungpaya, King 15, 67
Amherst ... ... 16, 18, 20, 72, 99, 115.
Amherstia 13
Amherst Point 79
—— Subdivision 73, 113
Anawrata, King 15
Andrew, Mr. 83
Anglo-Vernacular Schools 94
Annexation 16
Archæology 15, 18
Asin 118
Ataran Forest Division 48, 54
Ataran River 4, 6, 16. 27, 66, 69

B

Bagge. Lieut. 3
Bar, the 75
Barr, Mr. 102
Barrett, Mr. 52
Bazaars 65, 92
Bennet, Rev. Mr. 92
Betel Nut 36
Bibliography 121
Bilugyun ... ... 1, 4, 6, 9, 31, 58, 73, 107.
Binns, Mr. 84
Blundell, Mr. ... ... 17, 37, 49, 72, 73, 102.
Boat Building 61, 118
Bogle. Colonel 17, 93, 105
Botany 13
Boundaries 1
British India Steam Navigation Company 65
Broadfoote, Major ... ... 17, 72. 77, 78, 81, 97. 101.
Browne, Captain 45, 81, 85
Burmans 27
Burmese Administration 16, 72, 73, 80
Burmese Wars 1, 15, 16. 18

C

Campbell, Sir, A. 16, 17, 72, 100
Capitation Tax 84
Cattle Disease 46
Caves 19
Chaungzon 68, 107
—— Township 73, 107

C—concld.

	PAGE
Chinese	29
Cholera	96
Circle Boards	92
Civil Justice	73
Clegg, Mr.	7
Climate	14
Coggin Brown, Dr.	7
Collins, Mr.	3
Colvin, Mr.	17, 101, 103
Communications	65
Co-operative Societies	43
Cotter, Dr.	7
Cotton	37, 60
Crawford, Mr.	16, 17
Crime	76
Criminal Justice	75
Cultivation	31, 39
Customs	86

D

Dawnas, The	2, 5, 10, 13, 67, 105
Dhammathat	19, 110
Dhani	13, 36, 61, 83
Dispensary	99
District Cess Fund	79, 99
District Council	68, 79, 91
Drainage Works	47
Durians	13, 26, 36
Duff, Colonel	81, 85
Durand, Sir. H.M.	17, 72, 101

E

Education	26, 92
Electric Supply	90
Ellen Mitchell Memorial Hospital	99

F

Factories	62
Falconer, Dr.	50
Famine	70
Fauna	13
Fell, Lieut.	103
Female Education	94, 95
Ferries	69
Fires	100
Fire Brigade	90
Fisheries	60, 85
Food Supply	17, 26, 102
Forests	48
Forest Revenue	57
Fraser, Mr.	89
Fytche, Colonel	17

G

	PAGE
Gaitskell, Mr.	83
Gardens	35
General Administration	72
Geology	7
Green Island	9, 80, 115
Gyaing River	1, 2, 4, 6, 27, 31, 66.
Glossary	120

H

Halstead, Captain	49
Hangan	118
Haungtharaw	6
Hardwoods	54, 55
Health	95
Helfer, Dr.	5, 13, 49
History	1, 15, 100
Hlaingbwè	6
Hnidon	110
Hobday, Mr.	101
Hospitals	98
Hot Springs	12
Hough, Mr.	92, 102

I

Impey, Captain	72
Income Tax	88
Indebtedness	42
Indians	28
Insect Pests	38
Irrawaddy Flotilla Company	62, 66
Irrigation	46
Ivory Carving	60

J

Jails	78
Jamieson, Mr.	83
Judicial Administration	73

K

Kado	2, 50, 106
Kado and Agency Forest Division	56
Kahnyaw	108
Kalagauk	119
Kalaw	108
—— Pagoda	20
Kalawthut	114
Kalwi	108
Kamake	108
Kamawet	114
Kanni	112

K—concld.

	PAGE
Karaikthit	107
Karens	23, 27, 93, 94
Karokpi	116
Karon	109
Kawbauk	112
Kawbein	111
Kawdut	118
Kawhla	107
Kawhnat	106
Kawkareik Subdivision	73, 110
—— Town	67, 111
—— Town Committee	91, 97, 98
—— Township	27, 73, 110
Kawthat	109
Kèlatha Pagoda	21
Kwandon	114
Kwanhla	108
Kwanthe	107
Kwanyaik	108
Kyaikkami Township	73, 115
Kya-in Seikkyi	66, 68, 112
—— Township	73, 112
Kyaikmaraw	24, 68, 109
—— Township	73, 108
Kyaikthanlan	20, 104
Kyondo	66, 67, 94, 111

L

Lamaing	21, 118
Land Revenue	80, 85
Land Tenure (Rural)	40
Land Tenure (Urban)	101
Lè	31
Leper Asylum	99
Light Houses	79
Literacy	93
Local Self-Government	89

M

Maingy, Mr.	17, 31, 49, 72
Malaria	96
Mangosteens	13, 26, 36
Martaban Kingdom	15
Mawkanin	118
Mayin	31, 34
Meinma Myo	19
Metayo	59
Minerals	57
Môns	15, 22, 23, 24, 77, 94.
Moulmein Municipality	89, 97, 103
—— Subdivision	73, 106
—— Town	20, 100
—— Township	73, 106
Mountains	5

M—concld.

	PAGE
Mudon	114
—— Township	73, 113
Mudu	108
Muritgale	108
Myawaddy	64, 67

N

Nabu-Hnitcha	112
Newspapers	102
Nyaungbinzeik	60, 69, 109

O

Occupations	59
Oldham, Dr.	7
Oranges	36
O'Riley, Mr.	37
Overland Trade	64

P

Pa-auk	114
Pagodas	19
Pampa	108
Panga	116
Pata and *Patè*	34
Peinnègon	110
Pennell, Mr.	82
People, The	21
Pests	38
Phayre, Sir. A.	17, 81, 93
Pinus Merkusii	52
Plague	96
Police	77
Population	21, 22
Port, The	103
Post Offices	69
Pottery	60
Protection Works	47
Public Works	79

R

Races	23, 29
Railways	66
Rainfall	14
Rawlings, Mr.	3
Registration	75
Religion	26
Rest-houses	69
Revenue Administration	80, 85
Rice	31, 62
Rivers	6
Roads	67
Rubber	37, 40

S

	PAGE
Salt	58, 87
Salt Revenue	87
Salween River	1, 6, 56, 66
Sanitation	90, 97
Saw Mills	50, 62 118
Schools	26, 92
Sèbala	108
Settlements	81
Shans	16, 23, 28, 77
Ship Building	50, 61
Siamese	15
—— Boundary	2
—— Trade	64, 67
Silver work	60
Smallpox	96
Stamps	87
Stock, Agricultural	45
Subdivisions	73
Sugarcane	37

T

Tagundaing (Kya-in Township)	113
—— (Mudon Township)	114
Talaings	(See Môns)
Tarana	109
Taungbon	118
Taungnyo Hills	4, 5, 105
Taungthus	28, 77
Taungya	31, 35, 53
Tavoyans	28, 61
Telegraphs	69
Temperature	14
Tenants	41
Thaton Kingdom	15
Thaungbyin	118
Thaungyin Forest Division	51
—— River	1, 2, 4, 6, 56
Three Pagodas Pass	35
Timber Species	52, 54
Timber Trade	50, 62
Tin	58
Town Administration	103
Townships	73
Trade	59, 62
Transport	69
Tremenheere, Captain	49

U

Uzina Pagoda	20, 104

V

Vegetables	37
Vernacular Schools	94
Villages	24

V—concld.

	PAGE
Village Committees	92
—— Headmen	25
Vital Statistics	97

W

Wagaru	116
—— River	7, 16
Wallich, Dr.	49
Wariyu, King	15
Waterways	65
Water Supply	90
Winyaw River	6

Y

Yandabo, Treaty of	1, 16
Ye Town	2, 66, 99, 117
Ye River	5, 6, 66
Ye Township	28, 66, 73, 116
Yebu	12, 35
Yelè Pagoda	20
Ywalut	108

Z

Zami River	6
Zibuthaung	119